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72-7

DEEP MOORED INSTRUMENT STATION CRUISE REPORT

NORTH PACIFIC STUDY
Cruise 2

U.S.C.G.C. ACUSHNET
November 19 to December 19, 1968

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November 19 to December 19, 1968

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DEEP MOORED INSTRUMENT STATION CRUISE REPORT
NORTH PACIFIC STUDY CRUISE 2
U.S.C.G.C. ACUSHNET
November 19, 1968 - December 19, 1968

The primary objectives of North Pacific Study, Cruise 2, were to moor Convair buoy ALPHA at 42°N, 172°W, and service all S.I.O. catamaran buoys. Secondary objectives are listed below:

1. Marine meteorological observations every 6 hours.
2. Upper air sounding by Weather Bureau personnel every 12 hours.
3. XBT at each buoy and every 6 hours while underway.
4. STD lowering at each buoy.
5. Hydrographic cast to 500 m at the ALPHA and BRAVO moorings.

Additional casts at the discretion of the scientist in charge.

6. Assist personnel from Convair in servicing and mooring procedures, as needed.
7. Record pelagic observations as per instructions.
8. Report information from first three items in standard format by radio to Fleet Numerical Weather Central, Monterey, California.

The U.S.C.G.C. ACUSHNET departed San Diego on November 19, 1968 with the ALPHA buoy in tow. On November 23 the ALPHA buoy lost the upper section of its mast. ACUSHNET returned to San Diego, arriving on November 27. The ship topped off on fuel and water, and repairs were made on the Navigation Satellite System, radar and GDR.

The ACUSHNET departed San Diego on November 29, 1968 to service the S.I.O. buoys (p. 5). Buoy 45 (41°00.0'N, 148°02.0'W) was serviced on December 4. Both the radar reflector and the instrument mast had been

ripped out of the superstructure, leaving gaping holes. The superstructure was repaired and the instrument module serviced (p. 6, p. 7). The ship proceeded to the position of Buoy 44 ($43^{\circ}00.7'N$, $157^{\circ}20.9'W$) where two expanding square search patterns were run with negative results. The ship then proceeded to Buoy 41 ($42^{\circ}55.1'N$, $157^{\circ}46.8'W$) (p. 8) which was found moored, but mortally damaged. No instrumentation remained and the buoy itself was not salvagable. Photographs were taken of the damage.

It was also noted at this time that Buoy BRAVO was not on station. Buoy 39 ($42^{\circ}55.7'N$, $158^{\circ}20'W$) and Buoy 42 ($43^{\circ}35.6'N$, $157^{\circ}48.6'W$) were serviced on December 7. Both buoys were in generally good condition with the exception that the anemometers were not functioning. The anemometers were replaced and the instrument modules serviced. Since the weather was deteriorating rapidly it was decided to proceed to Buoy 38 ($42^{\circ}00.0'N$, $164^{\circ}00.1'W$). After standing by overnight waiting for the weather to moderate, this buoy was serviced on December 9. Buoy 38 was in excellent condition. The ACUSHNET returned to the cluster and serviced Buoy 40 ($42^{\circ}27.7'N$, $158^{\circ}02.0'W$) on December 10. This buoy had the radar reflector missing and apparently had just run out of power. Everything except the 300 meter sensors were operational after the servicing. Since a visual sighting of buoy BRAVO had not yet been obtained, the ship proceeded to Buoys 39 and 42 so that the anemometers could be replaced. The ship then returned to the original BRAVO mooring position and began a search on course $090^{\circ}T$.

Buoy BRAVO was sighted visually at $43^{\circ}02.9'N$, $154^{\circ}56.8'W$ approximately 130 miles east of its original position on December 11 (p. 9). The ACUSHNET remained on station near the buoy for 31 hours taking a series of navigation satellite fixes and recording 20 hourly

weather observations for intercomparison with data being telemetered by the buoy. Visual observation of buoy BRAVO showed that it was in very good condition, externally. The only damage noted was that one of the two air-sea temperature outriggers was missing. The AUGUSTINET departed the BRAVO area on December 13, and arrived in San Diego on December 19.

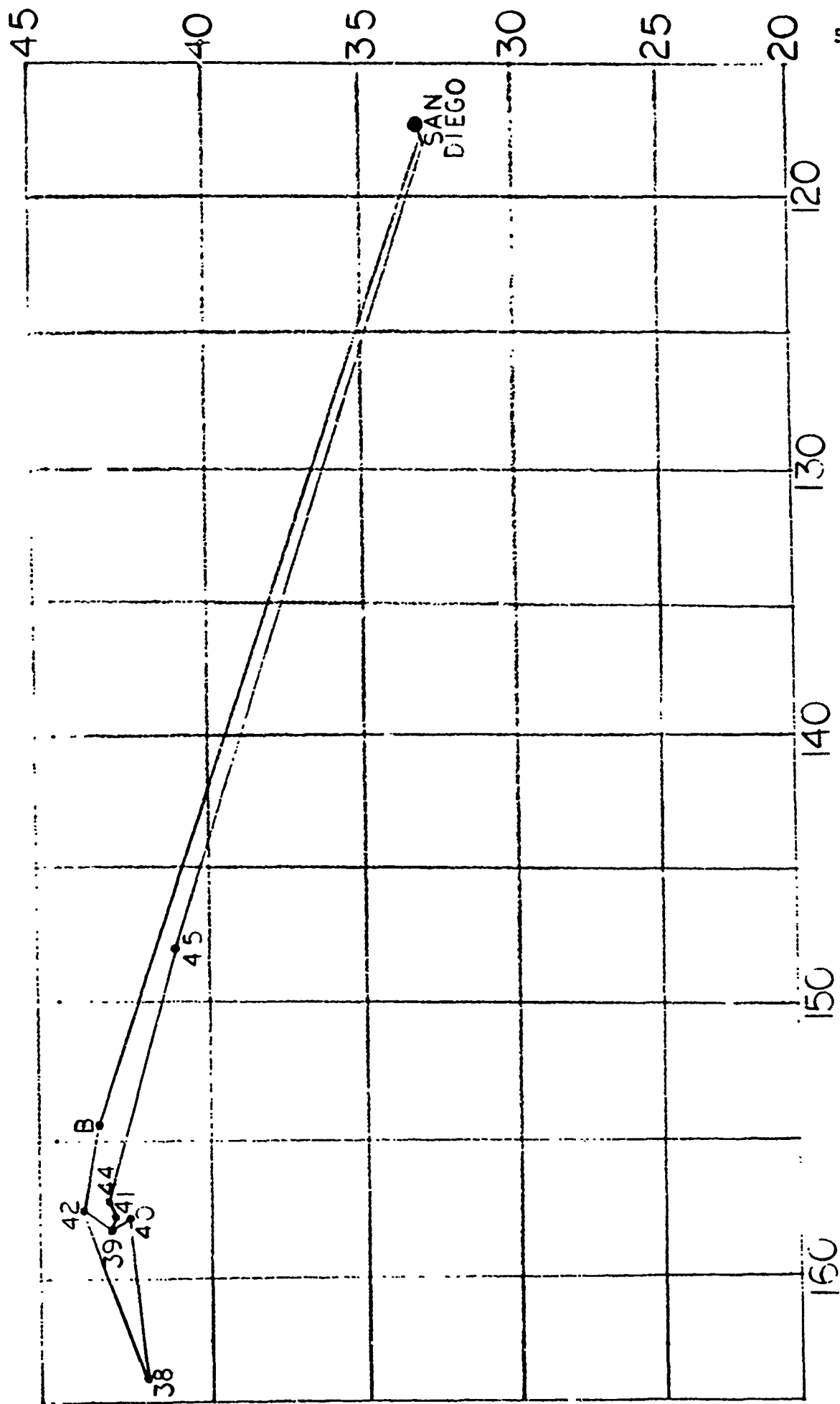
The objectives of the cruise were met with the following exceptions:

1. Convair buoy ALPHA was not moored.
2. Buoy 43 was not serviced since it was located too far from the planned cruise pattern and the extra time available was consumed during the unscheduled buoy BRAVO search and monitoring operation. Buoy 43 was reported on station and in good condition by a passing freighter in the middle of December, 1968.
3. No STD or hydrographic casts were made. It was decided to service the buoys as rapidly as possible while the good weather held. The nature of the winches available made these tasks very laborious and time-consuming.

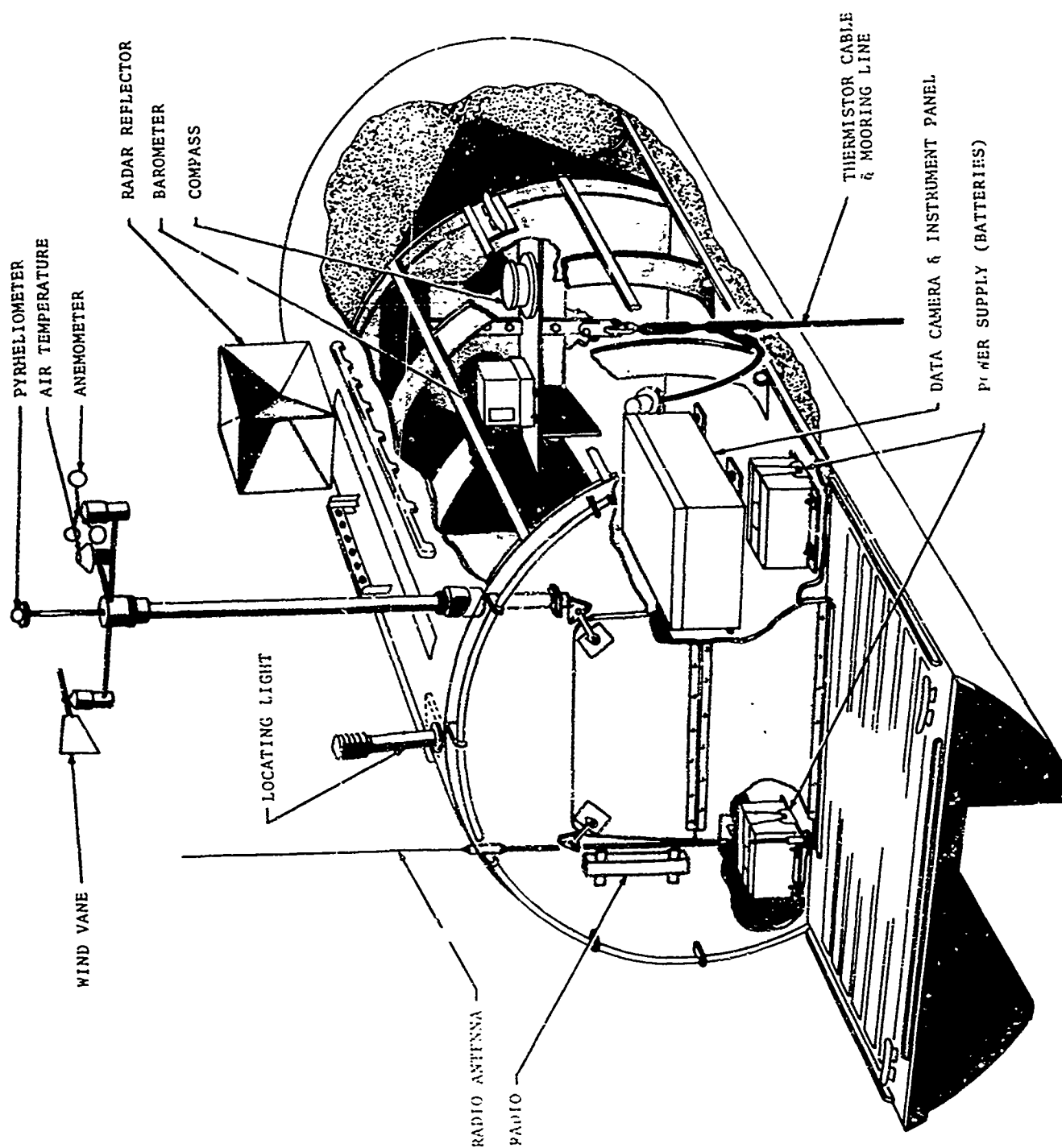
Specific details and information concerning the cruise make up the remainder of the report. The reader is requested to consult the Table of Contents to locate the items of interest to him.

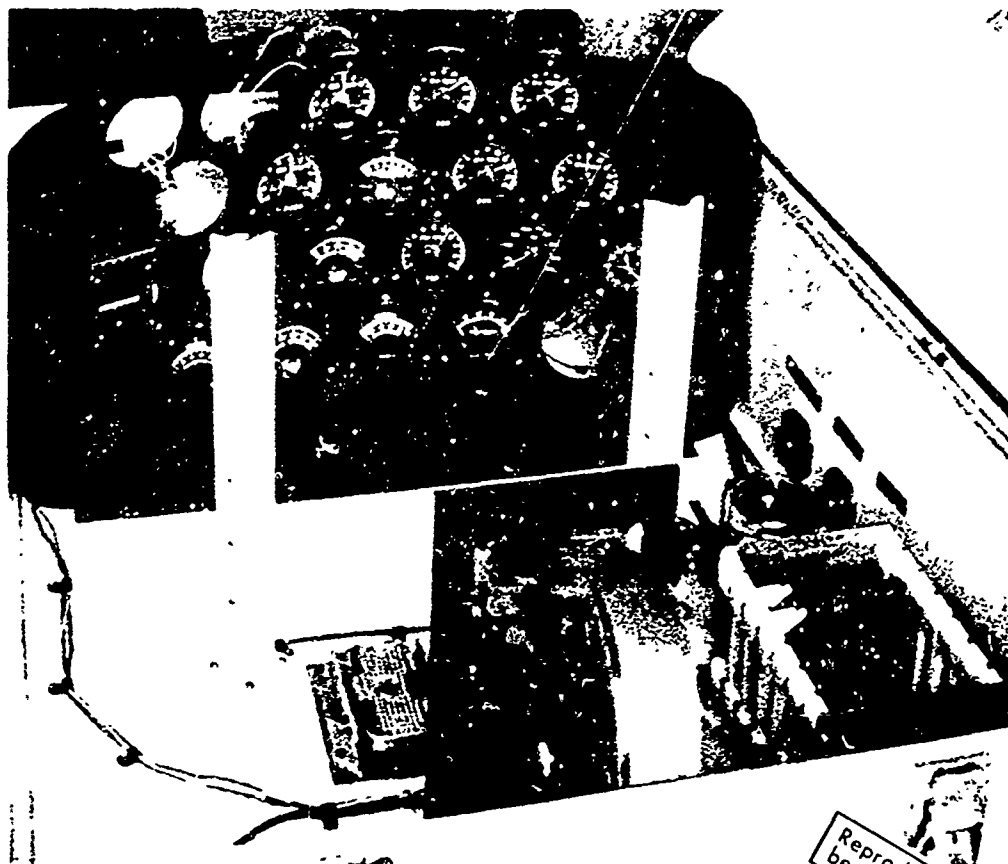
RECOMMENDATIONS

1. The buoy anemometers have had a high failure. Unit should be ruggedized or replaced with a tougher unit.
2. Wind velocity indicator has maximum scale of 70 knots. Suggest increasing maximum scale to 100 knots.
3. Wind direction now indicated in relative bearing. If feasible, electronically, the wind direction should be readout in True wind direction.
4. Investigate a radio transponder for the S.I.O. buoys which could be worked with the ship's ADF or some other compatible system.
5. Data camera magazine transport not sufficiently positive. Extra frames and slippage noticed. Suggest a more positive film drive mechanism be investigated.
6. Nav. Sat. problems indicate a need for replacing the punch tape programmer with an optical reader. Another desirable addition would be a "program protector" unit.
7. On several of the S.I.O. buoys it was found that nuts had loosened on instrument hold-downs in spite of lock washers. Recommend that all bolt fastenings be secured by torque wrench and further use of a product, such as, Loctite.
8. Radio transponder battery holder failed. This installation needs to be redesigned.
9. Instrument module dessicant containers are rather minimal. Suggest increasing amount of dessicant for inside the module.
10. Patching of skin damage to S.I.O. buoys extremely difficult. Suggest carrying a thin (1/8") marine plywood and a heavy duty staple gun to make these repairs. Small tubes of RTV for a seam sealer would be useful.
11. S.I.O. buoy radar reflectors have not been demonstrably useful; further, the radar reflector on #45 is suspect in damaging the instrument mast. Recommend that radar reflectors be left off.
12. This cruise again demonstrated the urgent need for high speed boat davits to handle the NSB.
13. Anemometer now located on port side of foremast. Recommend it be relocated on starboard side to give best results while ship is on station. (Starboard is weather side on station.)
14. Radar still a problem. Suggest complete overhaul or a new radar installation.



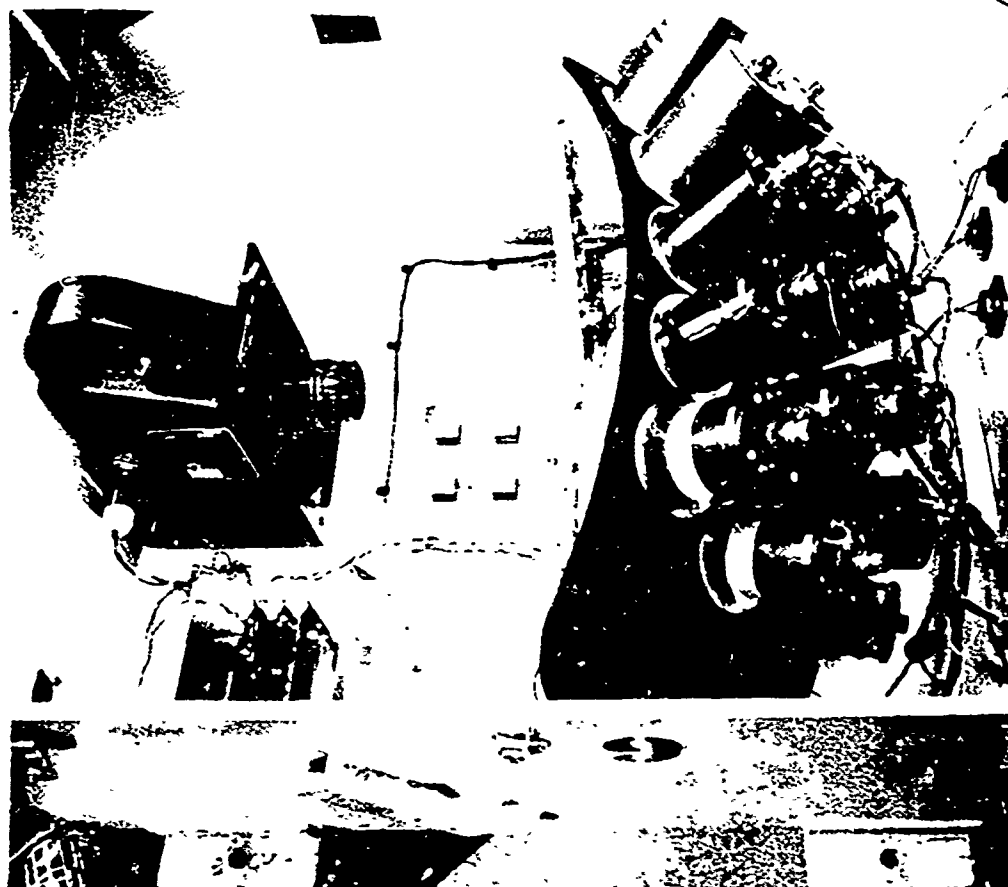
Ship's Track during NPS Cruise 2
U.S.C.G.C. ACUSINET Nov. 19--Dec. 19, 1968



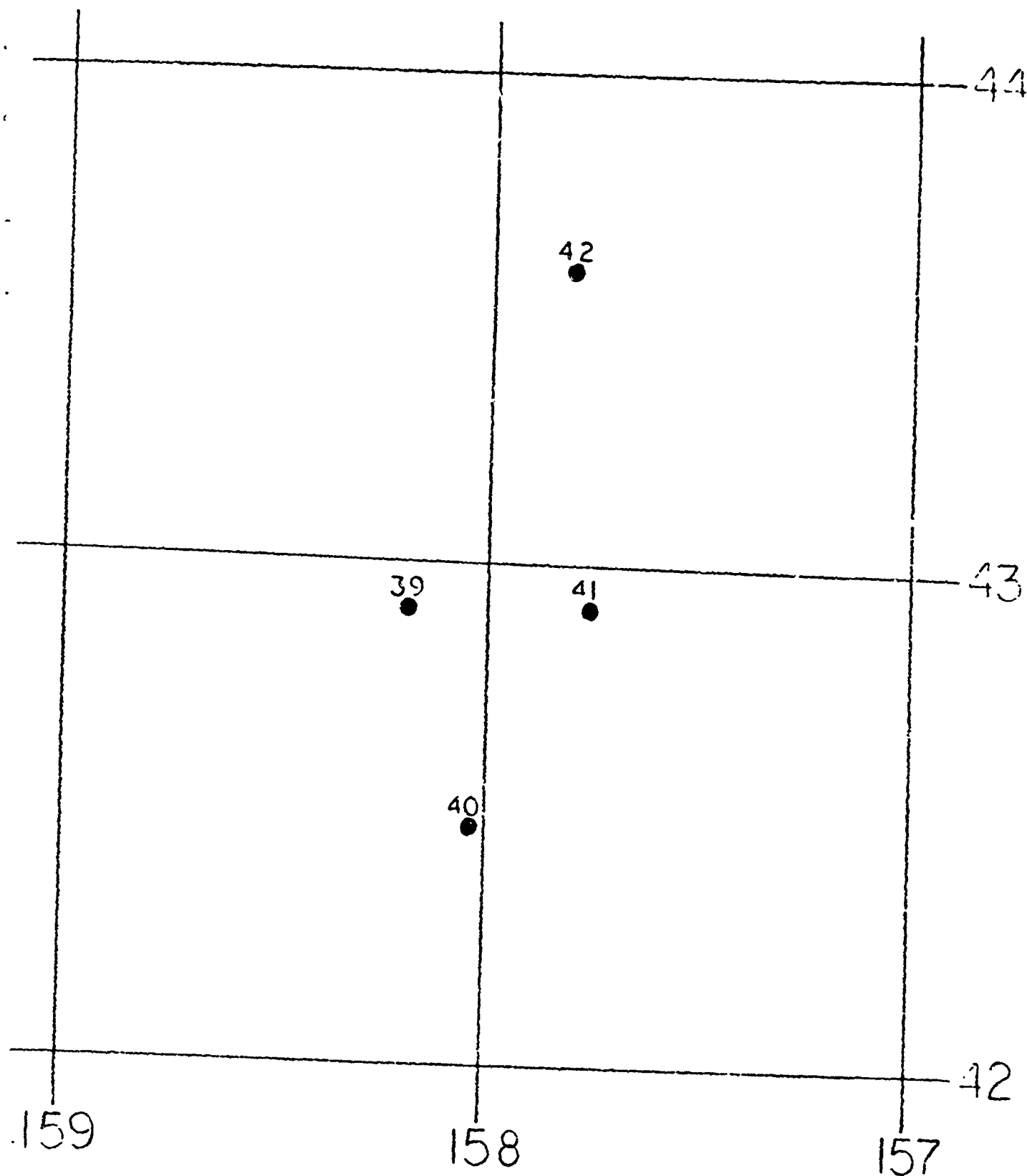


Opened instrument box showing instrument panel and panel light frames.

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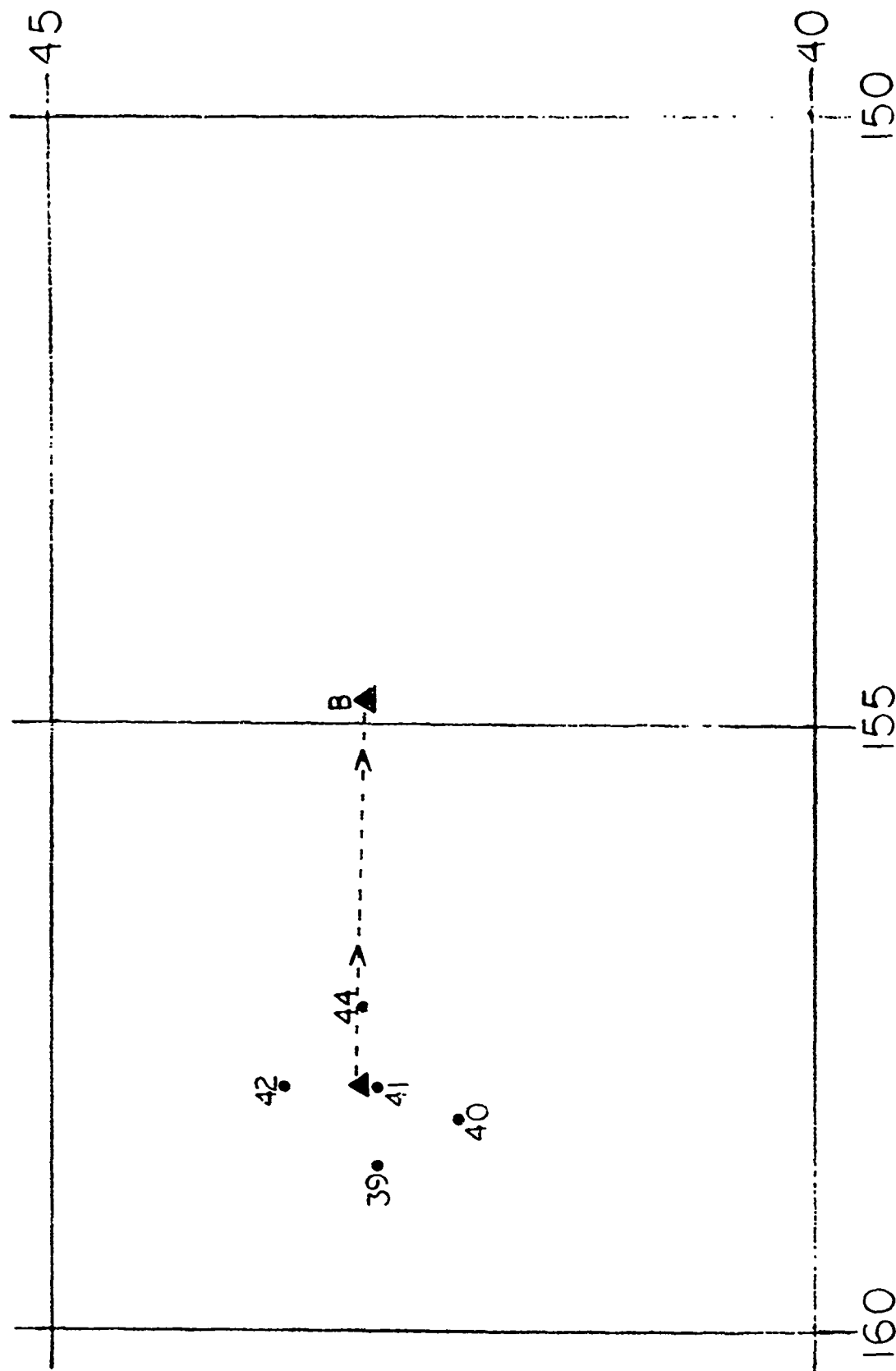


Instrument box showing camera with instrument panel tipped forward for servicing.



Locations of Buoys Within the Cluster

NPS Cruise 2



Displacement of Buoy Bravo from its Original Position During the Period
16 October 1968--11 December 1968

Mooring Position Summary

<u>Position</u>	<u>Buoy No.</u>	<u>Installation Date</u>	<u>Service Date</u>
43°35.6N 157°48.6W	42	19 Sept. 1968	07 Dec. 1968 11 Dec. 1968
43°00.7N 157°20.9W	44	20 Sept. 1968	Gone as of 06 Dec. 1968
42°27.7N 158°02.0W	40	21 Sept. 1968	14 Oct. 1968 10 Dec. 1968
35°05.0N 157°49.0W	43	27 Sept. 1968	**
42°00.0N 164°00.1W	38	09 Oct. 1968	09 Dec. 1968
42°55.7N 158°12.0W	39	11 Oct. 1968	07 Dec. 1968 10 Dec. 1968
42°55.1N 157°46.8W	41	11 Oct. 1968	07 Dec. 1968 Damaged. No instrumentation
41°00.0N 148°02.0W	45	19 Oct. 1968	05 Dec. 1968
42°58.3N 157°45.7W	BRAVO	11 Aug. 1968	24 Sept. 1968
43°02.9N* 154°56.8W	BRAVO		11 Dec. 1968 Not boarded

All positions obtained by Nav Sat except Buoy No. 43.
Buoy No. 43 position established by star fix.

*BRAVO not on original mooring site. Search located BRAVO at new position and it appears to have remoored.

**Buoy No. 43 was not scheduled for servicing during North Pacific Study Cruise No. 2.

SUMMARY OF DATA COLLECTED

1. Buoy data film retrieved:

<u>Buoy No.</u>	<u>Frames of Data</u>	<u>Date</u>
42	1368	12-7-68 (p. 12)
44	Buoy presumed lost	12-6-68 (p. 14)
40	1280	12-10-68 (p. 15)
43	Not serviced	
38	1488	12-9-68 (p. 18)
39	1434	12-7-68 (p. 20)
41	Instrument module missing	12-7-68 (p. 22)
45	1744	12-4-68 (p. 25)

2. Marine meteorological observations--110 (p. 29)

3. Upper air sounding--42 (p. 29)

4. XBT drops--67 (p. 30)

5. STD casts--none

6. Hydrographic casts--none

7. Pelagic observations (p. 31)

A very heavy concentration of silver dollar-sized Vellela lata was observed several times during the cruise.

8. Special observations: (p. 32)

20 marine meteorological observations were taken hourly while standing by buoy BRAVO for intercomparison with data being telemetered by the buoy.

BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE # 2BUOY # 42

POSITION <u>43° 35.1' N</u> <u>157° 48.5' W</u>		INST. CASE # <u>15</u>		DATE <u>12-7-68</u> GMT <u>16.01</u> <u>12-11-68</u> <u>03.11</u>		LAST SERVICE DATE <u>9-19-68</u>	
FILM MAGAZINE FRAME COUNT		CALCULATED <u>1176</u>		ACTUAL <u>1368</u>		BUOY CONDITION <u>Good</u>	
						INST. CASE CONDITION <u>Good</u>	

SEA TEMP INDICATORS					INDICATOR	READING	LAB INDI.
DEPTH	°C	CAL	XBT	TDS			
1M	<u>9.4</u>		<u>9.5</u>		WIND TRANSPORT	<u>93182</u>	
5M	<u>9.4</u>		<u>9.5</u>		AIR TEMP °C	<u>6.0</u>	
10M	<u>10.4</u>		<u>9.5</u>		COMPASS mag	<u>270°</u>	
30M	<u>9.4</u>		<u>9.5</u>		WIND DIRECTION rel	<u>180°</u>	
50M	<u>9.2</u>		<u>9.5</u>		WIND SPEED Knts	<u>INOPERATIVE</u>	
75M	<u>11.5</u>		<u>9.4</u>		BAROMETER mbs	<u>1005</u>	
100M	<u>-</u>		<u>8.8</u>		150M PRESSURE psia	<u>OPEN CIRCUIT</u>	
150M	<u>8.0</u>		<u>8.3</u>		LINE TENSION lbs	<u>500</u>	
300M	<u>7.5</u>		<u>7.2</u>		BATTERY VOLTS load no load	<u>11.4</u>	
SURFACE TEMP °C <u>9.5</u>					300M PRESSURE psia	<u>OPEN CIRCUIT</u>	
SYSTEM BATTERIES		PORT Ser. #	STBD Ser. #	PYRHELIOMETER		<u>045806</u>	Ser. # <u>35061</u>
SPECIFIC GRAVITY Pos		<u>1255</u>	<u>1265</u>	BAROMETER SENSOR		<u>1005</u>	
Cen		<u>1240</u>	<u>1268</u>	RADIO TRANSPONDER		<u>INOPERATIVE</u>	
Neg		<u>1245</u>	<u>1260</u>	TRANSPONDER BATTERY VOLTAGE		<u>BATTERY MISSING</u>	
ACCUIRON CLOCK DAY 341 ERROR		MIN <u>6</u>	SEC <u>17</u>	LIGHT BEACON		<u>OPERATING</u>	
FAST <input checked="" type="checkbox"/>		SLOW <input type="checkbox"/>		SERVICED BY:		<u>GOULD & KELLEY</u>	

Instruments and components changed and serial nos. REPLACED WIND SPEED TRANSDUCER

Sensor checks or test performed (Describe) RESERVED BUOY ON 12-11-68

Overall condition of plugs, cables and hardware (internal & external):

Servicing notes: Buoy 42 December 7 & 10, 1968

This buoy was in good condition and the patch on the hole, caused by the ship's scuppers during launching, is strong.

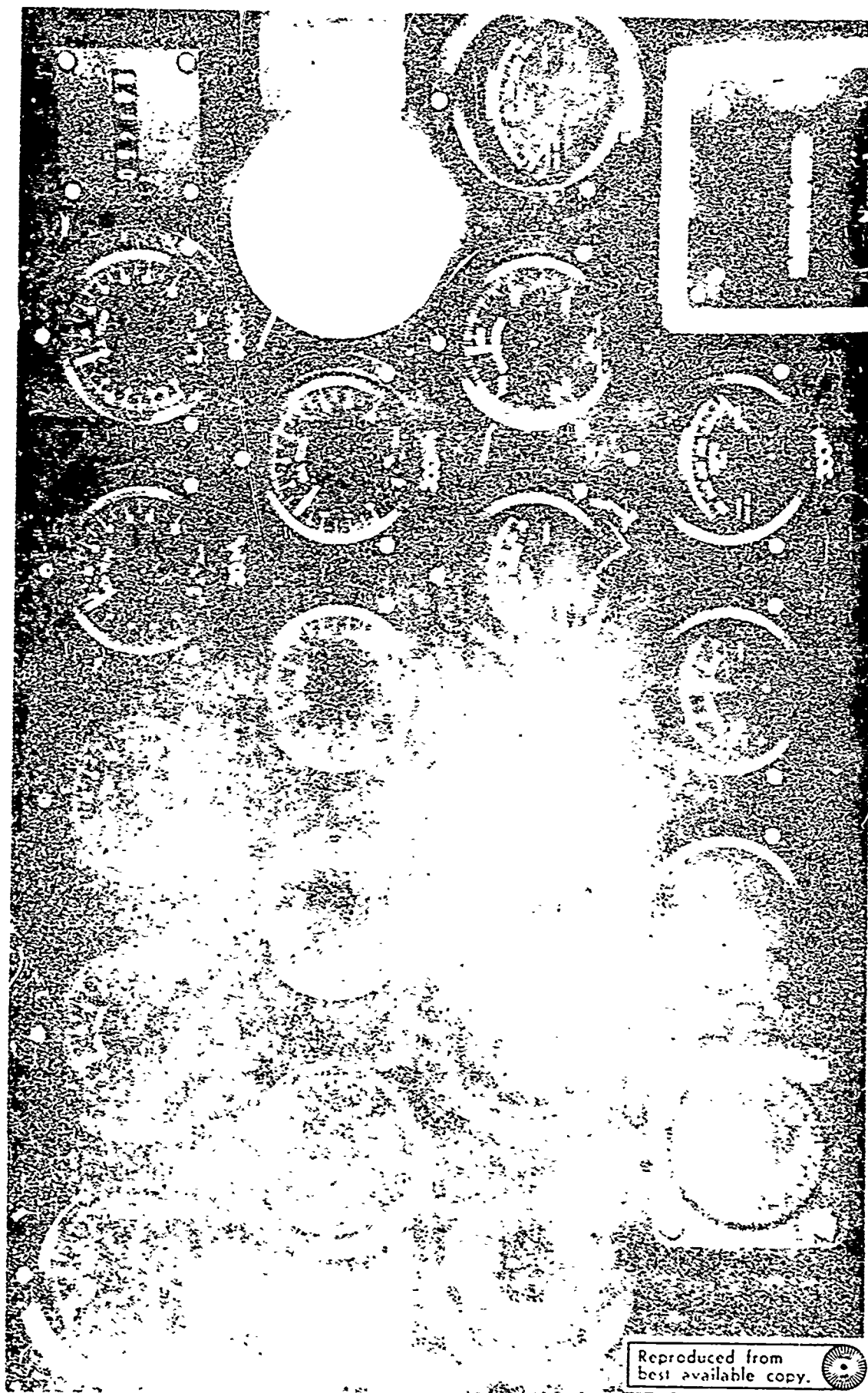
Installed new label showing position and date launched, etc.

The DF radio battery was found forward of its secured bracket and starboard of the instrument box.

During the December 7 servicing, a hail and slush storm left ice on the buoy rear deck making battery transfer more dangerous.

The wind speed and totalizer indicators were not working. Since it was found that the threads had been stripped on the weather mast set screw socket, it was impossible to install a new weather mast assembly. A new anemometer was installed on the existing weather mast assembly. The wind speed indicators were then operational.

The circuits to the 150 and 300m pressure depth transducers are open.



BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE # 2BUOY # 44

POSITION <u>43°00.7'N 157°20.9W</u>				INST. CASE #		DATE GMT <u>12-6-68 2305</u>		LAST SERVICE DATE <u>9-20-68</u>			
FILM MAGAZINE FRAME COUNT		CALCULATED		ACTUAL		BUOY CONDITION		INST. CASE CONDITION			
						<u>Unable to locate after 7 hour search.</u>		<u>Presumed lost.</u>			
SEA TEMP INDICATORS					INDICATOR		READING		LAB INDI.		
DEPTH	°C	CAL	XBT	TDS							
1M					WIND TRANSPORT						
5M					AIR TEMP °C						
10M					COMPASS mag						
30M					WIND DIRECTION rel						
50M					WIND SPEED Knts						
75M					BAROMETER mbs						
100M					150M PRESSURE psia						
150M					LINE TENSION lbs						
300M					BATTERY VOLTS ^{load} _{no load}						
SURFACE TEMP °C					300M PRESSURE psia						
SYSTEM BATTERIES		PORT Ser. #		STBD Ser. #		PYRHELIOMETER				Ser. #	
SPECIFIC GRAVITY Pos					BAROMETER SENSOR						
Gen					RADIO TRANSPONDER						
Neg					TRANSPONDER BATTERY VOLTAGE						
ACCUIRON CLOCK					LIGHT BEACON						
DAY		ERROR		MIN SEC		SERVICED BY:					
FAST <input type="checkbox"/>		SLOW <input type="checkbox"/>									

Instruments and components changed and serial nos. _____

Sensor checks or test performed (Describe) _____

Overall condition of plugs, cables and hardware (internal & external): _____

BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE # 2BUOY # 40

POSITION <u>42° 27.7' N</u> <u>158° 02.0' W</u>		INST. CASE # <u>10</u>		DATE GMT <u>12-10-68 1747</u>		LAST SERVICE DATE <u>10-13-68</u>	
FILM MAGAZINE FRAME COUNT		CALCULATED <u>1392</u>		ACTUAL <u>1280</u>		BUOY CONDITION <u>SMALL 2"x3" HOLE IN HULL REPAIRED</u>	
						INST. CASE CONDITION <u>GOOD</u>	
SEA TEMP INDICATORS					INDICATOR		READING
DEPTH	°C	CAL	BT	TDS			LAB INDI.
1M	9.5		9.6		WIND TRANSPORT		141185
5M	9.7		9.6		AIR TEMP °C		6.8
10M	9.9		9.6		COMPASS mag		090
30M	9.3		9.6		WIND DIRECTION rel		090
50M	9.3		9.6		WIND SPEED knts		4
75M	9.5		9.6		BAROMETER mbs		0 *
100M	8.9		9.1		150M PRESSURE psia		230
150M	4.4		8.1		LINE TENSION lbs		400
300M	OPEN CIRCUIT		6.6		BATTERY VOLTS load no load		11.8
SURFACE TEMP °C <u>9.6</u>					300M PRESSURE psia		SHORTED XCDR
SYSTEM BATTERIES		PORT Ser. #	STBD Ser. #	PYRHELIOMETER		070436 Ser. # 35060	
SPECIFIC GRAVITY Pos 1240		1238		BAROMETER SENSOR		1025	
Cen 1240		1238		RADIO TRANSPONDER		INOPERATIVE	
Neg 1237		1243		TRANSPONDER BATTERY VOLTAGE		BATTERY REMOVED	
ACCUTRON CLOCK DAY 344 ERROR MIN 6 SEC 30				LIGHT BEACON		OPERATING	
FAST <input checked="" type="checkbox"/> SLOW <input type="checkbox"/>				SERVICED BY:		Gould & Keltner	

Instruments and components changed and serial nos. REMOVED CBIL SN#006
REPLACED WITH SN#007

Sensor checks or test performed (Describe) POTENTIOMETER IN BAROMETER
XCDR LINKAGE BROKEN. NO SPARES ON SHIP

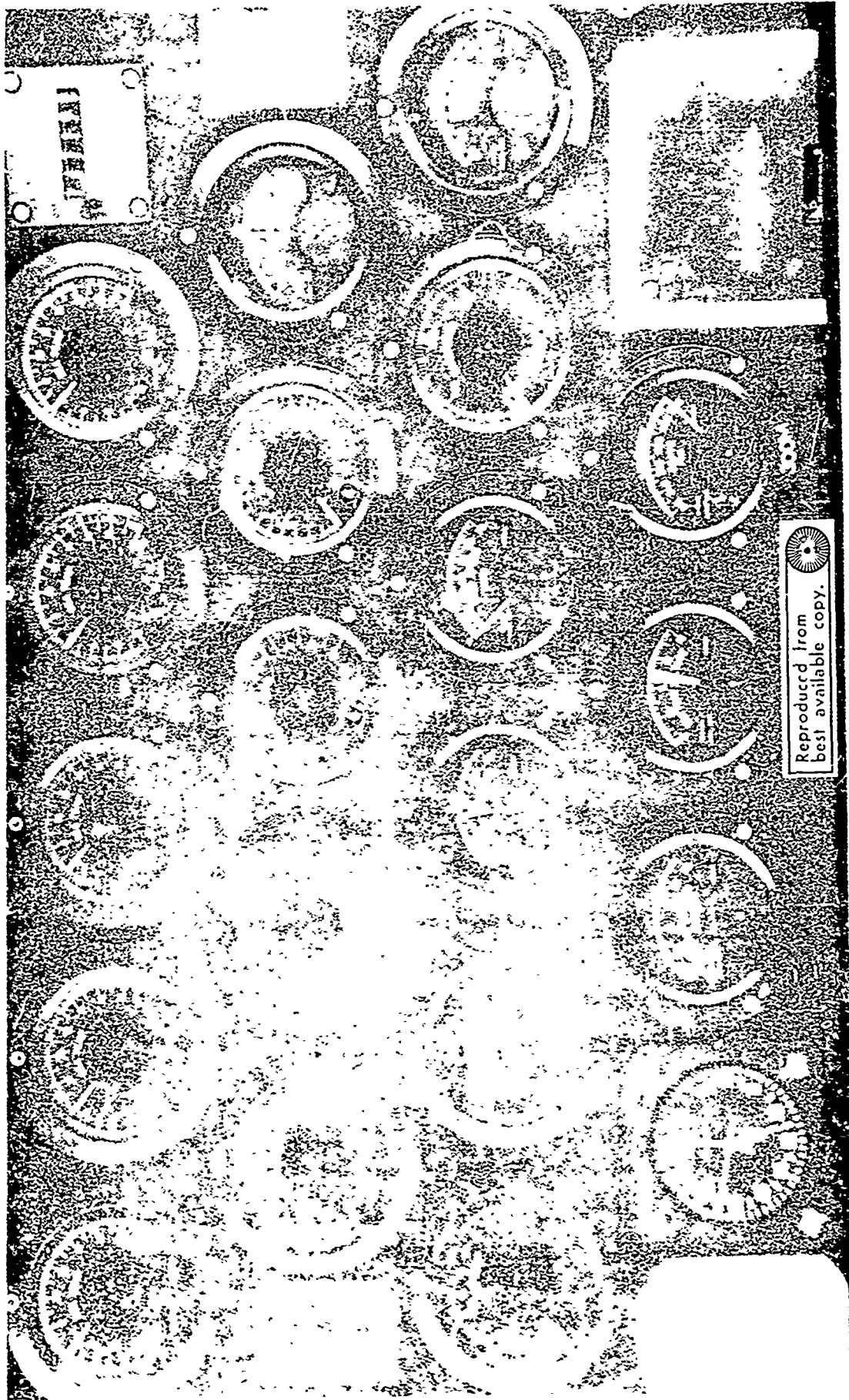
Overall condition of plugs, cables and hardware (internal & external):

Servicing notes: Buoy 40 December 10, 1968

This buoy was found by radar before dawn even though its radar reflector was gone. The DF radio blue battery was found forward of its secured clamp with its cables still connected. It was removed. There was a small hole in the hull between Bulkheads 2 and 3 on the port side about 4 inches above the deck which was temporarily patched with a rag and black R.T.V.

This buoy was dead on our arrival but the camera frame count indicated that the power had run out only about a week before. There is a short in its circuitry somewhere, perhaps behind the panel jumper plug. This buoy at one time was set to take six minute pictures and also contains an additional indicator on the panel to check the effect of buoy motion on the other instrument meters. The power supply batteries which were removed showed a low gravity of approximately 1.238. It is suggested that a whole new instrument module be installed here.

The 300m sea temperature had an open circuit and the 300m pressure meter was pinned. The load cell indicated approximately correct but erratic line tension values.



BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE # 2BUOY # 43

POSITION <u>35° 05' N</u> <u>157° 49' W</u>				INST. CASE # <u>18</u>		DA1 GMT		LAST SERVICE DATE <u>9-27-68</u>	
FILM MAGAZINE		CALCULATED		ACTUAL		BUOY CONDITION		INST. CASE CONDITION	
FRAME COUNT								<u>Buoy # 43 NOT SCHEDULED FOR SERVICING DURING NPS CRUISE #2</u>	
SEA TEMP INDICATORS					INDICATOR		READING		LAB INDI.
DEPTH	°C	CAL	XBT	TDS					
1M					WIND TRANSPORT				
5M					AIR TEMP °C				
10M					COMPASS mag				
30M					WIND DIRECTION rel				
50M					WIND SPEED knts				
75M					BAROMETER mbs				
100M					150M PRESSURE psia				
150M					LINE TENSION lbs				
300M					BATTERY VOLTS ^{load} _{no load}				
SURFACE TEMP °C					300M PRESSURE psia				
SYSTEM BATTERIES		PORT Ser. #		STBD Ser. #		PYRHELIOMETER		Ser. #	
SPECIFIC GRAVITY Pos						BAROMETER SENSOR			
Cen						RADIO TRANSPONDER			
Neg						TRANSPONDER BATTERY VOLTAGE			
ACCUTRON CLOCK						LIGHT BEACON			
DAY	ERROR	MIN	SEC			SERVICED BY:			
FAST <input type="checkbox"/>		SLOW <input type="checkbox"/>							

Instruments and components changed and serial nos. _____

Sensor checks or test performed (Describe) _____

Overall condition of plugs, cables and hardware (internal & external): _____

BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE # 2BUOY # 38

POSITION <u>42° 00.0' N</u> <u>164° 00.0' W</u>		INST. CASE # <u>14</u>		DATE <u>12-9-68</u>	GMT <u>1800</u>	LAST SERVICE DATE <u>10-9-68</u>	
FILM MAGAZINE FRAME COUNT		CALCULATED <u>1464</u>		ACTUAL <u>1488</u>		BUOY CONDITION <u>GOOD</u>	
						INST. CASE CONDITION <u>GOOD</u>	
SEA TEMP INDICATORS					INDICATOR		READING
DEPTH	°C	CAL	XBT	TDS			LAB INDI.
1M	<u>10.6</u>		<u>10.8</u>		WIND TRANSPORT		<u>303224</u>
5M	<u>10.4</u>		<u>10.8</u>		AIR TEMP °C		<u>5.9</u>
10M	<u>10.6</u>		<u>10.8</u>		COMPASS mag		<u>300°</u>
30M	<u>10.5</u>		<u>10.8</u>		WIND DIRECTION rel		<u>000°</u>
50M	<u>10.6</u>		<u>10.8</u>		WIND SPEED Knts		<u>10</u>
75M	<u>10.5</u>		<u>10.8</u>		BAROMETER mbs		<u>1024</u>
100M	<u>10.6</u>		<u>10.5</u>		150M PRESSURE psia		<u>240</u>
150M	<u>8.9</u>		<u>9.0</u>		LINE TENSION lbs		<u>ERRATIC</u>
300M	<u>7.7</u>		<u>7.6</u>		BATTERY VOLTS load no load		<u>115</u>
SURFACE TEMP °C <u>10.8</u>					300M PRESSURE psia		<u>456</u>
SYSTEM BATTERIES		PORT Ser. #	STBD Ser. #	PYR LIOMETER		<u>56152</u>	Ser. # <u>35055</u>
SPECIFIC GRAVITY Pos		<u>1262</u>	<u>1280</u>	BAROMETER SENSOR		<u>1024</u>	
Cen		<u>1270</u>	<u>1275</u>	RADIO TRANSPONDER		<u>INOPERATIVE</u>	
Neg		<u>1264</u>	<u>1275</u>	TRANSPONDER BATT. VOLTAGE		<u>REMOVED BATTERY</u>	
ACCUTRON CLOCK		DAY <u>343</u> ERROR MIN <u>16</u> SEC <u>3</u>		LIGHT BEACON		<u>OPERATING</u>	
FAST <input checked="" type="checkbox"/>		SLOW <input type="checkbox"/>		SERVICED BY:		<u>GOULD - KELLOGG</u>	
Instruments: 1 components changed and serial nos. <u>NONE</u>							

Sensor checks or test performed (Describe) VISUAL INSPECTION OF PANEL INDICATORS

Overall condition of plugs, cables and hardware (internal & external):

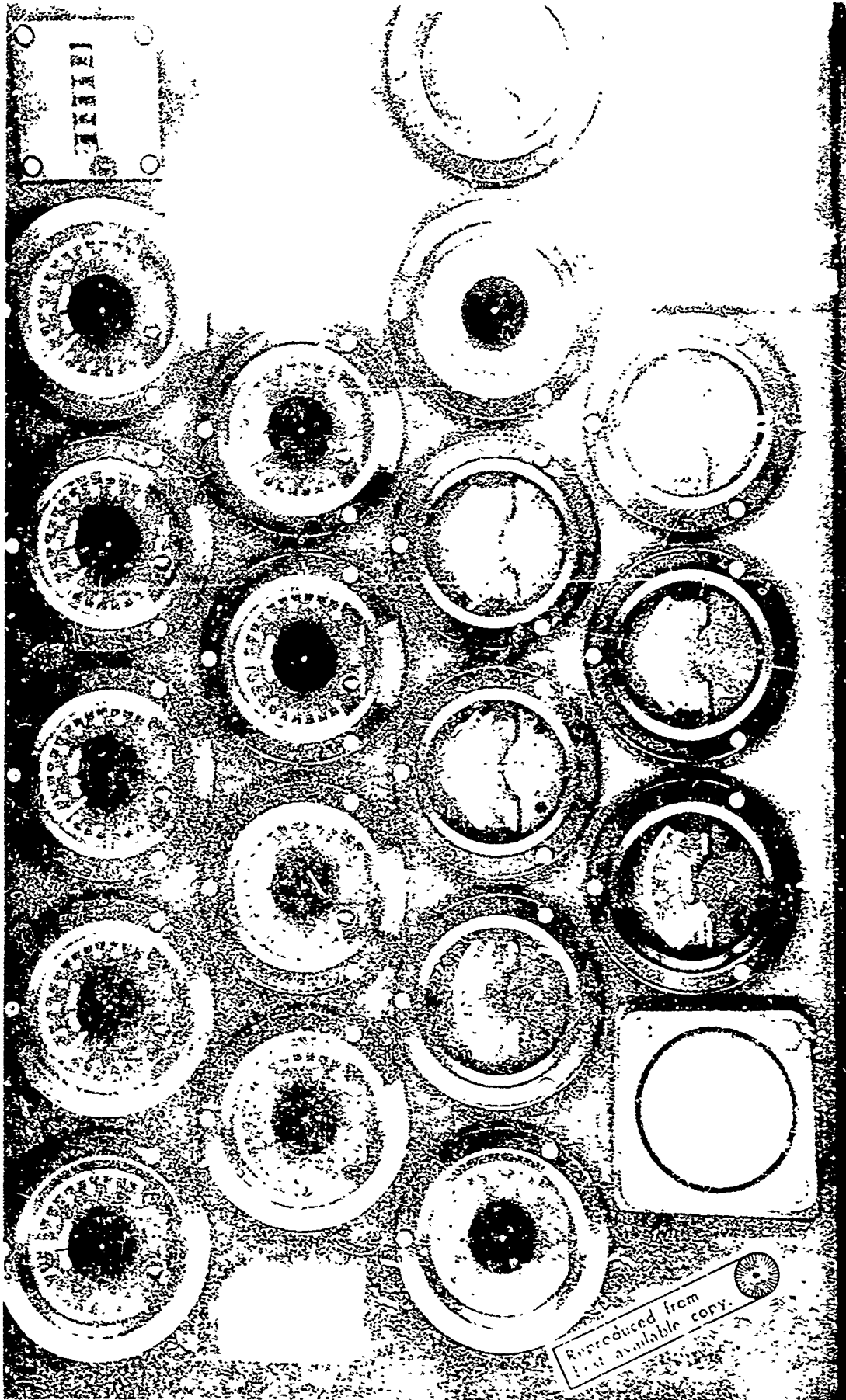
Servicing notes: Buoy 38 December 9, 1968

This buoy was in the best condition of all.

The light module was questionable and was changed. Ship's personnel reported that it did not work well during the night. The line tension readings were erratic, jumping from high to low readings. The DF radio battery was found forward of its secured bracket and on the port side of the instrument module. It was removed.

The cable clamps on the instrument lines through the bulkheads were corroded. Evidently the clips are not stainless steel.

All instrumentation with the possible exception of the load cell was operational and no meters were removed.



BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE " 2BUOY # 39

POSITION <u>42°54.5' N</u> <u>158°169' W</u>		INST. CASE # <u>16</u>		DATE <u>12-7-68</u> <u>12-10-68</u>	GMT <u>0253</u> <u>2312</u>	LAST SERVICE DATE <u>10-11-68</u>	
FILM MAGAZINE FRAME COUNT		CALCULATED <u>1368</u>		ACTUAL <u>1434</u>		BUOY CONDITION <u>GOOD</u>	
						INST. CASE CONDITION <u>GOOD</u>	

SEA TEMP INDICATORS					INDICATOR	READING	LAB INDI.
DEPTH	°C	CAL	XBT	TDS			
1M	<u>9.6</u>		<u>9.2</u>		WIND TRANSPORT	<u>3669.3</u>	
5M	<u>8.4</u>		<u>9.2</u>		AIR TEMP °C	<u>7.2</u>	
10M	<u>8.8</u>		<u>9.2</u>		COMPASS mag	<u>120°</u>	
30M	<u>11.8</u>		<u>9.2</u>		WIND DIRECTION rel	<u>310°</u>	
50M	<u>9.6</u>		<u>9.2</u>		WIND SPEED knts	<u>10</u>	
75M	<u>9.7</u>		<u>9.2</u>		BAROMETER mbs	<u>1014</u>	
100M	<u>8.7</u>		<u>8.9</u>		150M PRESSURE psia		
150M	<u>8.4</u>		<u>8.4</u>		LINE TENSION lbs	<u>FULL SCALE</u>	
300M	<u>6.7</u>		<u>6.9</u>		BATTERY VOLTS load no load	<u>11.8</u>	
SURFACE TEMP °C <u>9.2</u>					300M PRESSURE psia	<u>400</u>	
SYSTEM BATTERIES		PORT Ser. #	STBD Ser. #	PYRHELIOMETER		<u>136915</u>	Ser. # <u>35052</u>
SPECIFIC GRAVITY Pos		<u>1260</u>	<u>1270</u>	BAROMETER SENSOR		<u>1014</u>	
Cen		<u>1260</u>	<u>1270</u>	RADIO TRANSPONDER		<u>INOPERATIVE</u>	
Neg		<u>1260</u>	<u>1270</u>	TRANSPONDER BATTERY VOLTAGE		<u>BATTERY REMOVED</u>	
ACCUTRON CLOCK				LIGHT BEACON		<u>OPERATING</u>	
DAY ERROR MIN SEC				SERVICED BY:		<u>GOULD & KELLOGG</u>	
FAST <input type="checkbox"/> SLOW <input type="checkbox"/>							

Instruments and components changed and serial nos. REPLACED WEATHER MAST
ASSEMBLY SN# 35058 WITH MAST ASSEMBLY # 35052 BECAUSE
WIND SPEED NOT OPERATING

Sensor checks or test performed (Describe) _____

Overall condition of plugs, cables and hardware (internal & external):
GOOD

Servicing notes: Buoy 39 December 7 & 10, 1968

The anemometer cups and top bolt were gone, but the threads were alright. The cups were replaced, but the wind speed indicator and totalizer still did not work. On December 10, this buoy was reboarded, a new weather mast assembly was installed and these parameters are now operative. Installed instrument mast head 35052 and removed instrument mast head 35058.

The line tension meter read full scale.

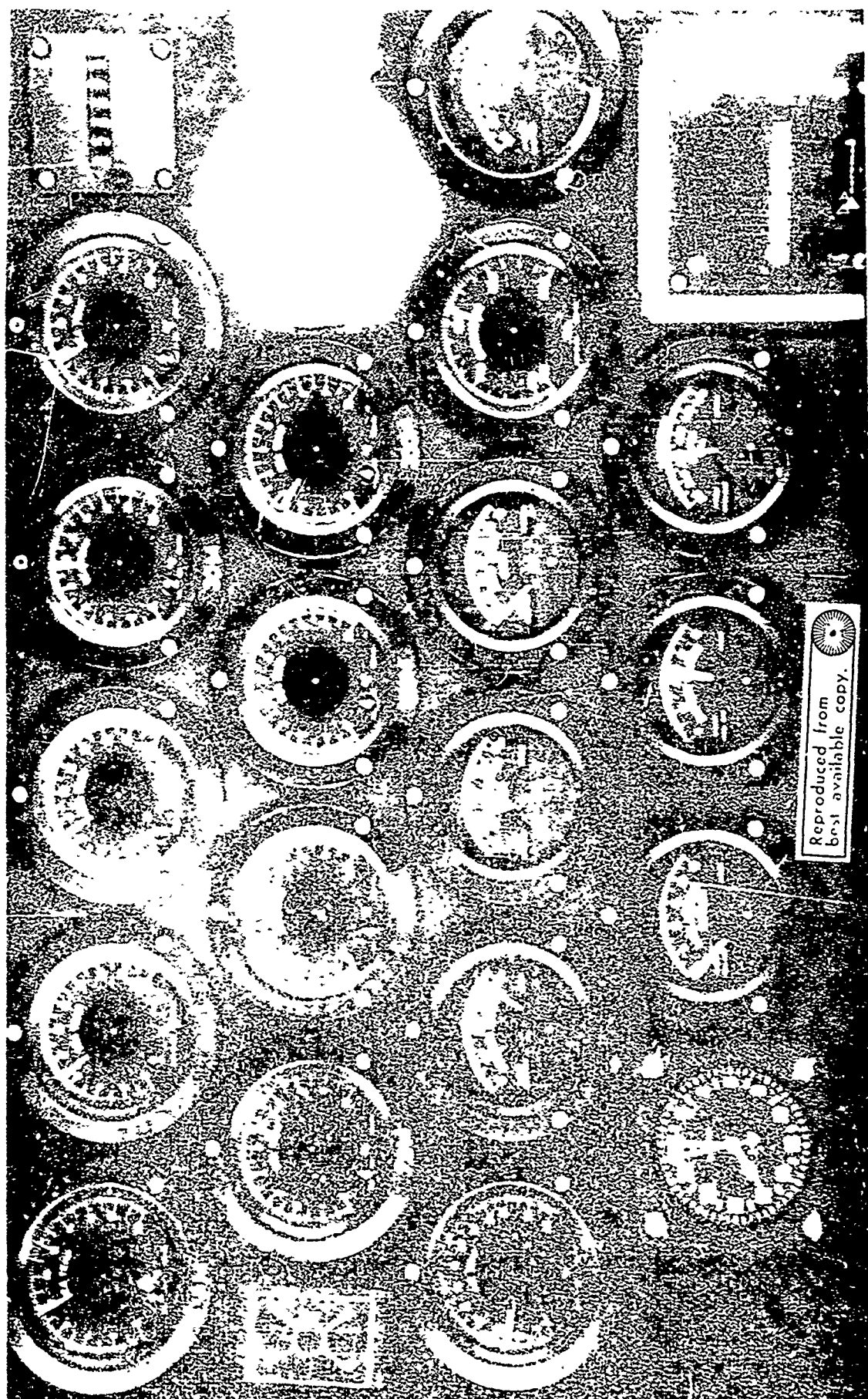
The bolts on the instrument module, barometer and compass were all loose.

The DF radio battery was forward of its secured bracket with its electrolight gone.

The 1 x 1 on the rear of the deck was missing.

All cable clamps on the starboard side cables through the bulkheads were corroded.

When the new data camera was installed, its microswitch would not shut off the instrument box. Another camera had to be sent for and installed.



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BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE # 2BUOY # 41

POSITION <u>42° 35' 1" N</u> <u>157° 46.8' W</u>		INST. CASE # <u>—</u>		DATE <u>12-7-68</u>	GMT <u>0110</u>	LAST SERVICE DATE <u>10-11-1968</u>	
FILM MAGAZINE		CALCULATED		ACTUAL		BUOY CONDITION <u>BADLY DAMAGED</u>	
FRAME COUNT						INST. CASE CONDITION <u>NONE</u>	
SEA TEMP INDICATORS					INDICATOR	READING	LAB INDI.
DEPTH	°C	CAL	XBT	TDS			
1M					WIND TRANSPORT		
5M					AIR TEMP °C		
10M					COMPASS mag		
30M					WIND DIRECTION rel		
50M					WIND SPEED Knts		
75M					BAROMETER mbs		
100M					150M PRESSURE psia		
150M					LINE TENSION lbs		
300M					BATTERY VOLTS ^{load} _{no load}		
SURFACE TEMP °C					300M PRESSURE psia		
SYSTEM BATTERIES		PORT	STBD		PYRHELIOMETER		Ser. #
		Ser. #	Ser. #		BAROMETER SENSOR		
SPECIFIC GRAVITY Pos					RADIO TRANSPONDER		
Cen					TRANSPONDER BATTERY VOLTAGE		
Neg					LIGHT BEACON		
ACCUSSION CLOCK					SERVICED BY:	<u>KELLOGG & HOFFER</u>	
DAY	ERROR	MIN	SEC				
FAST <input type="checkbox"/>		SLOW <input type="checkbox"/>					

Instruments and components changed and serial nos. _____

Sensor checks or test performed (Describe) _____

Overall condition of plugs, cables and hardware (internal & external): _____

Servicing notes: Buoy 41 December 6, 1968 (0100 Z 12/7/68)

All skin and framing around Bulkheads 2, 3, 4, and 5 were gone except port side where frame and skin sticks up about 1-1/2 feet. On the starboard side the skin was off below the water line. The complete hatch (door) was lying flat on the deck. The bow was all right with the towing eye and member in place. The portside vertical and horizontal 2 x 4's around the rear deck were gone. The 1 x 1 on the rear deck was in place on the port and starboard side but missing along the rear. The rear deck cleats were in place. On the port side, the grab rail was broken off at the butt plate and on the starboard side it was broken off clean. The instrument mast, yellow instrument mast cable and the black battery cable bitter ends were held at Bulkhead 2 on the starboard side and dangled in the water. The screw connector plug was still on the instrument line, but all other screw plugs were gone. The instrument shelf, compass transducer and barometer transducer on Bulkhead 1 were completely gone with the outward shelf brackets in place. The midship shelf bracket was missing, having been pulled from the deck. The instrument module was completely gone but the four mounting studs were in place, unbent with the threads undamaged. The nuts were gone. There was a great deal of deck abrasion where the instrument box should have been. The blue radio beacon battery bracket was smashed flat. Both main power supply battery plates were undamaged. The portside strap was intact but the starboard inboard snap was broken. The lower section of the DF radio antenna was still in place and attached to the deck. The antenna was broken at the through-hull screw connection but the threads were alright. The through-hull instrument line was intact and held by the tight friction fitting and RTV. The instrument line was still on deck.

There are about 25 Ektachrome color slides of this buoy hulk.



Station No. 41 float showing heavy damage.

BUOY SERVICE RECORD

NORTH PACIFIC STUDY

CRUISE # 2BUOY # 45

POSITION <u>41° 00.0'N</u> <u>148° 02.0'W</u>	INST. CASE # <u>13</u>	DATE GMT <u>12-5-68 0025</u>	LAST SERVICE DATE <u>10-19-68</u>
--	---------------------------	---------------------------------	--------------------------------------

FILM MAGAZINE FRAME COUNT	CALCULATED <u>1128</u>	ACTUAL <u>1744</u>	BUOY CONDITION <u>WEATHER MAST RADAR REFLECTOR GENE-3KIN DAMAGE</u>	INST. CASE CONDITION <u>GOOD</u>
------------------------------	---------------------------	-----------------------	--	-------------------------------------

SEA TEMP INDICATORS					INDICATOR	READING	LAB INDI.
DEPTH	°C	CAL	XPT	TDS			
1M	<u>15.8</u>	<u>6</u>			WIND TRANSPORT	<u>*</u> (SEE NOTE)	
5M	<u>13.4</u>	<u>6</u>			AIR TEMP °C	<u>*</u>	
10M	<u>OPEN</u> <u>*</u>				COMPASS mag	<u>320°</u>	
30M	<u>13.6</u>	<u>6</u>			WIND DIRECTION rel	<u>*</u>	
50M	<u>12.0</u>	<u>6</u>			WIND SPEED Knts	<u>*</u>	
75M	<u>12.2</u>	<u>6</u>			BAROMETER mbs	<u>1028</u>	
100M	<u>OPEN</u> <u>*</u>				150M PRESSURE psia	<u>*</u>	
150M	<u>OPEN</u> <u>*</u>				LINE TENSION lbs	<u>*</u>	
300M	<u>OPEN</u> <u>*</u>				BATTERY VOLTS load no load	<u>11.4</u>	
SURFACE TEMP °C					300M PRESSURE psia	<u>*</u>	

SYSTEM BATTERIES	PORT Ser. #	STBD Ser. #	PYRHELIOMETER	<u>*</u>	Ser. #
SPECIFIC GRAVITY Pos	<u>1260</u>	<u>1275</u>	BAROMETER SENSOR	<u>1029</u>	
Cen	<u>1260</u>	<u>1275</u>	RADIO TRANSPONDER	<u>NON-OPERATIONAL</u>	
Neg	<u>1260</u>	<u>1075</u>	TRANSPONDER BATTERY VOLTAGE	<u>BATTERY ADRIPT</u>	
ACCUTRON CLOCK			LIGHT BEACON	<u>NON-OPERATIONAL</u>	<u>REPLACED</u>
DAY 339 ERROR	MIN	CO SEC	SERVICED BY:	<u>GOULD, KELLOGG & HUFFLER</u>	
FAST <input type="checkbox"/>	SLOW <input checked="" type="checkbox"/>	<u>45</u>			

Instruments and components changed and serial nos. * REMOVED. SEA TEMP INDICATOR: OPEN CIRCUIT. METEOROLOGICAL SENSORS DESTROYED 15CM/30CM PRESSURE XCDR OPEN CIRCUIT LINE TENSION OPEN CIRCUIT. CB10 SN#010 FOR SN#003

Sensor checks or test performed (Describe) SEA TEMP INDICATORS CHECKED BY COMPARING OPERATIONAL THERMISTOR WITH DOUBTED INDICATOR
Overall condition of plugs, cables and hardware (internal & external):

Servicing notes: Buoy 45 December 4, 1968 (0025 Z 12/5/68)

The upper half of the door was open and the upper dogs were in the open position. There was a 9 x 20 inch hole through the forward part of the buoy roof where the radar reflector and mount had ripped away. The weather mast and bulkhead bracket had pulled out through the roof leaving a 3 x 5 inch hole from which the fibreglass mat had peeled. The yellow instrument mast line came out through this hole and trailed into the water across the rear deck starboard side. There were 2 inches of water forward in the buoy at the base of the instrument shelf at Bulkhead 2. The blue radio beacon battery was found portside rear with the 2 end electrolyte caps off and the fluid drained away. The steel battery bracket was still in the locked position and the battery had moved out from under the bracket by going forward. There were blue marks on the inside of the roof and other locations within the buoy from the flying radio battery, which had holed the slanted overhead above the barometer compass instrument shelf.

A new light beacon module was installed and the light now works. Temporary repairs were made on the roof holes using plywood, finishing nails and R.T.V. The circuit board for the pyroheliometer was removed.

There were many Vellela lata in the water around the buoy--small ones about the size of a silver dollar.

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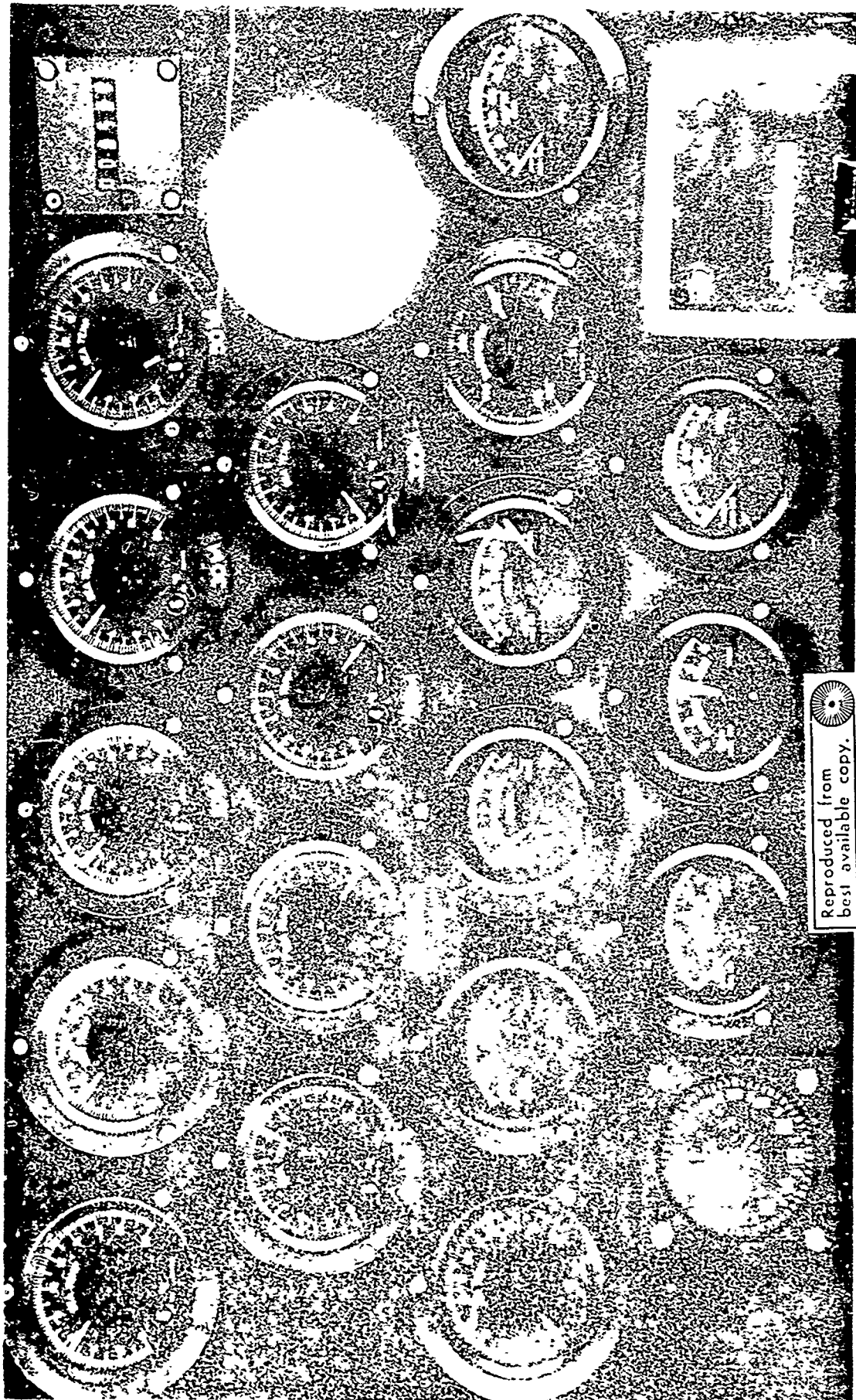
Buoy 45. Instrumentation

10, 100, 150, and 300m sea temperature indicators were removed as the circuits to the thermistors were open.

All weather mast indicators were removed because the weather mast was completely gone and could not be repaired.

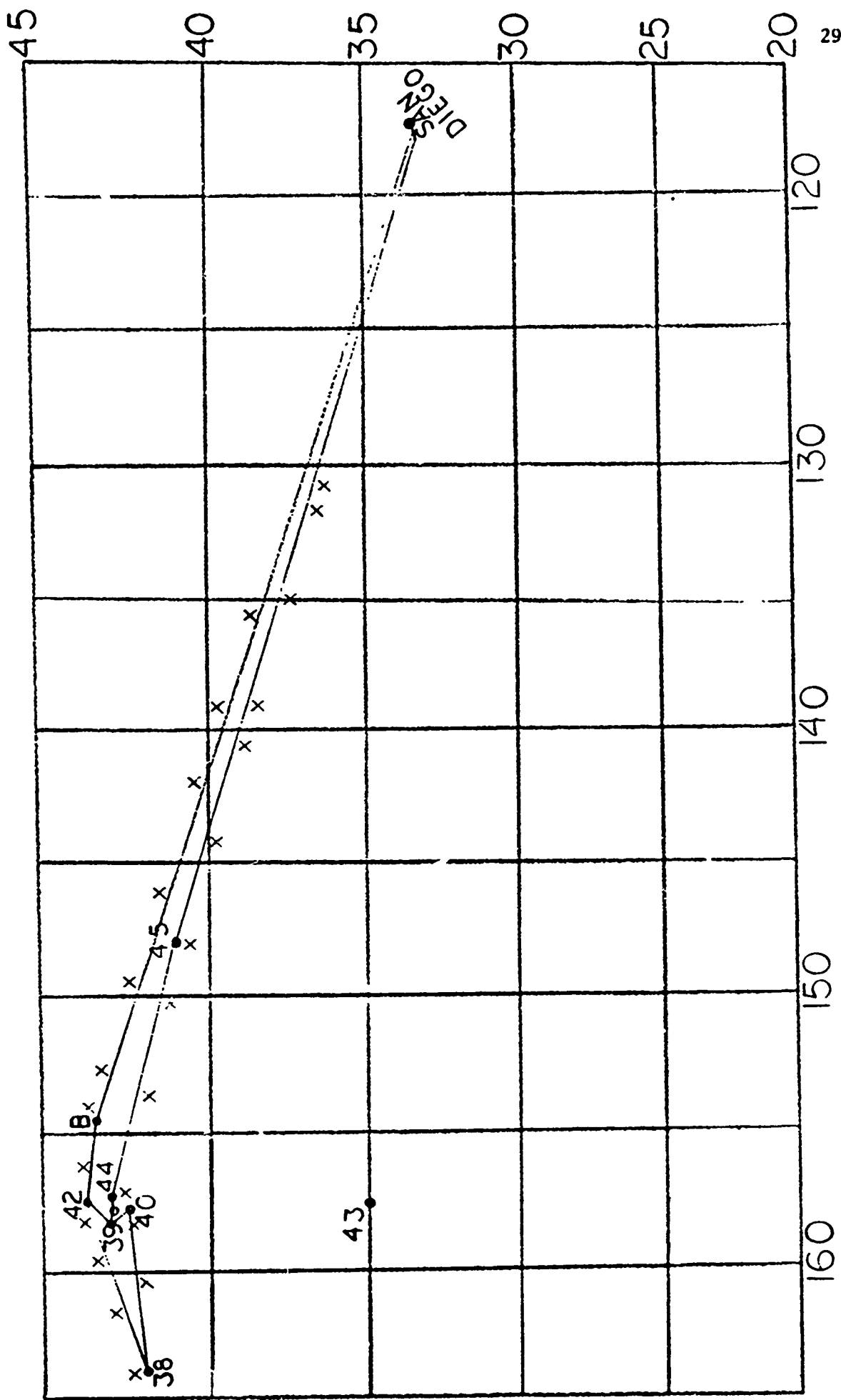
The 150 and 300m pressure indicators were removed as the pressure transducer circuits were open.

The line tension indicator was removed as it was inoperative.

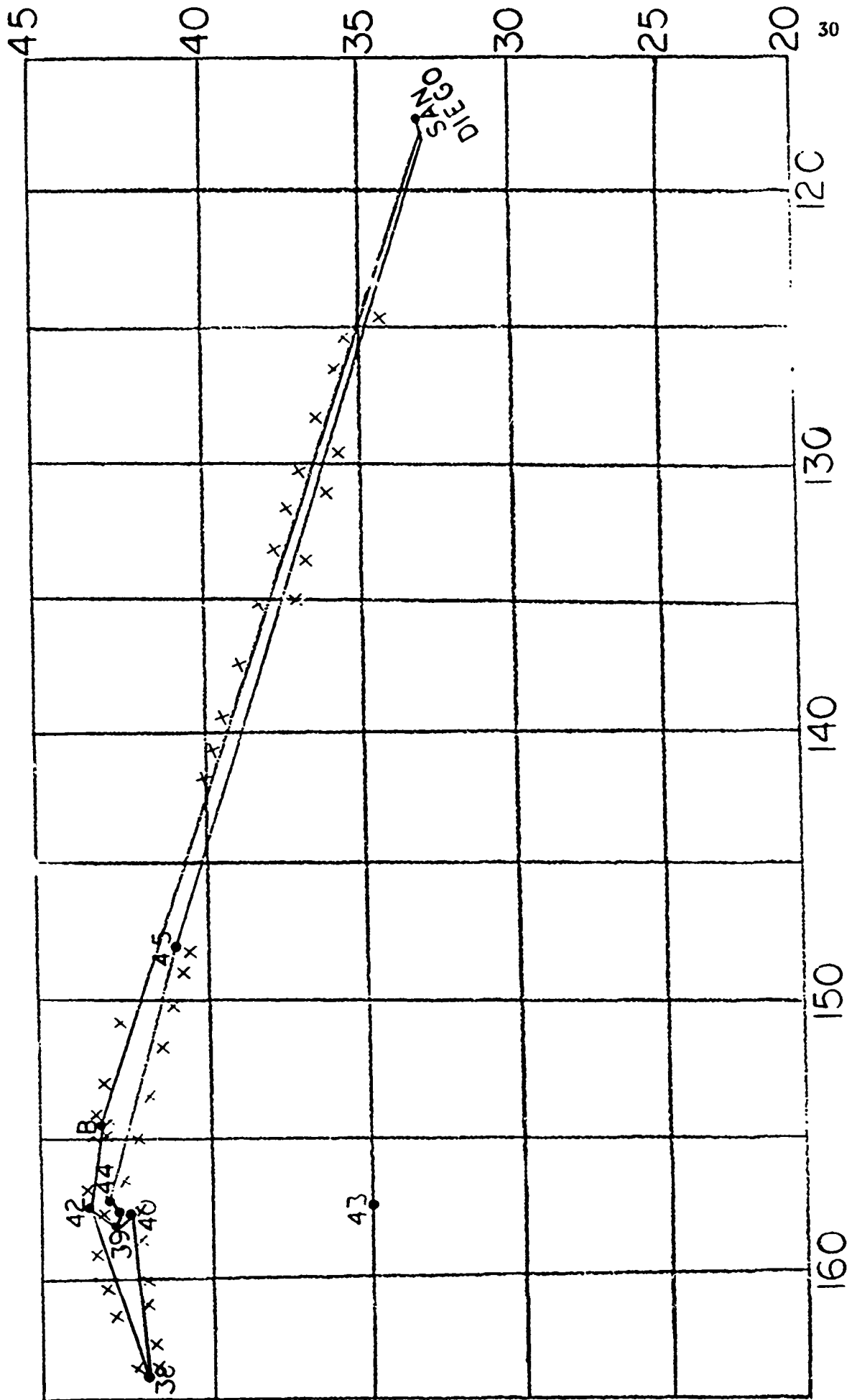


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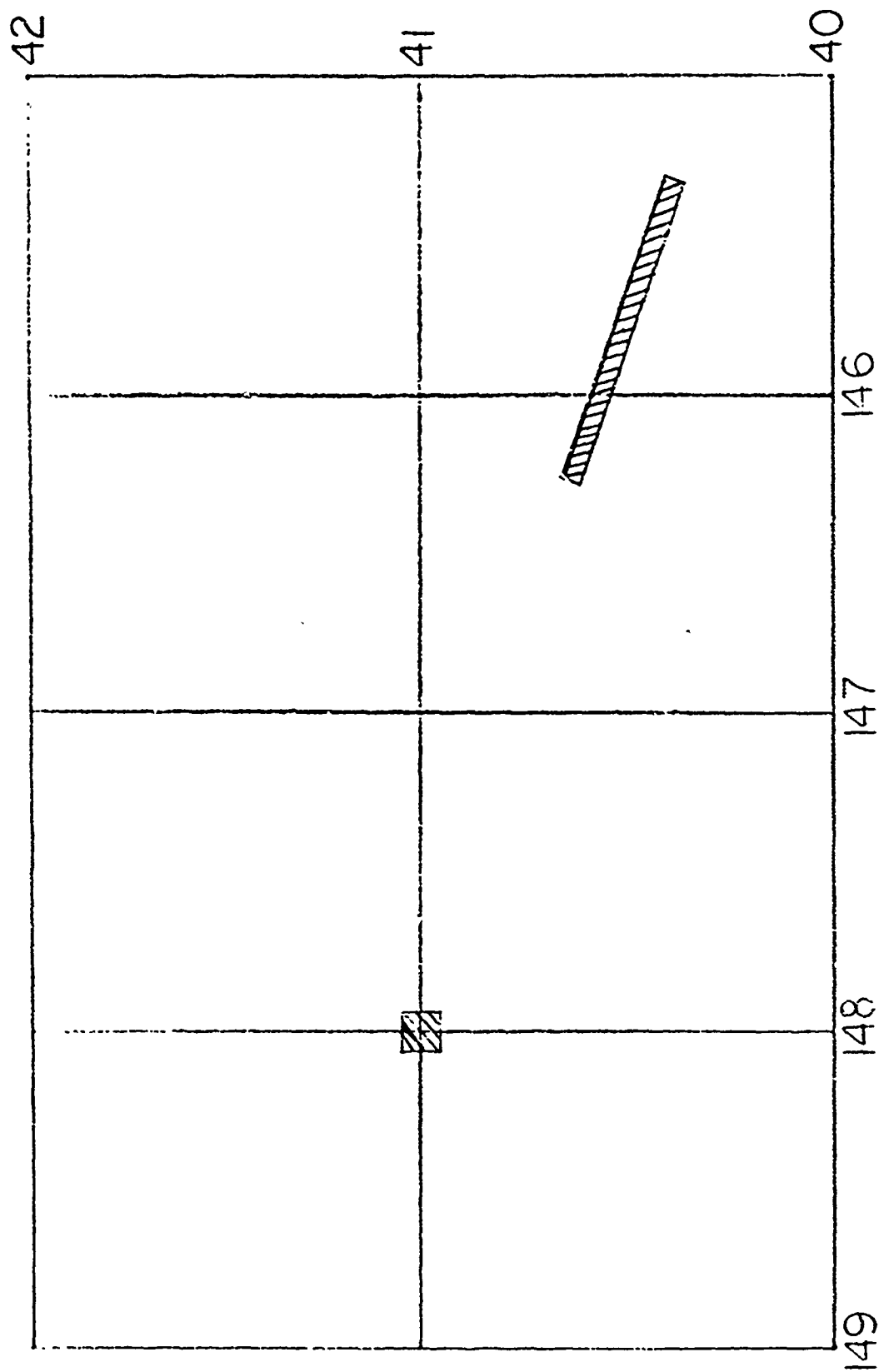
WB FORM 512-1A (11-66) U.S. DEPARTMENT OF COMMERCE ESSA WEATHER BUREAU MOVING SHIP VOYAGE REPORT		1. NAME OF SHIP USCGC Acushnet 2. HOME PORT OF SHIP San Diego, California							
TO: Weather Bureau, W13 (Original) Copy: Regional Headquarters Project Supervisor Port Supervisor NWRC, Asheville, N.C. 28801		3. DEPARTURE <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">a. PORT San Diego, Calif.</td> <td style="width:25%;">b. TIME 2pm</td> <td style="width:25%;">c. DATE 11/19/68</td> </tr> </table> 4. RETURN <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">a. PORT San Diego, Calif.</td> <td style="width:25%;">b. TIME 9am</td> <td style="width:25%;">c. DATE 12/19/68</td> </tr> </table>		a. PORT San Diego, Calif.	b. TIME 2pm	c. DATE 11/19/68	a. PORT San Diego, Calif.	b. TIME 9am	c. DATE 12/19/68
a. PORT San Diego, Calif.	b. TIME 2pm	c. DATE 11/19/68							
a. PORT San Diego, Calif.	b. TIME 9am	c. DATE 12/19/68							
I. ITINERARY									
AR. DATE	OTHER PORTS OF CALL	DP. DATE							
11/27	San Diego, California	11/29							
II. SURFACE OBSERVATIONS									
5. NUMBER OF SCHEDULED OBS. TAKEN		8. NUMBER OF SCHEDULED OBS. NOT TAKEN							
110		0							
6. NUMBER OF SPECIAL OBSERVATIONS TAKEN		a. LIST REASONS							
0									
7. NUMBER OF OBSERVATIONS FILED LATE									
0									
a. LIST REASONS									
III. RADIOSONDE									
9. NUMBER OF SCHEDULED OBSERVATIONS TAKEN*		16. REASONS FOR TERMINATED OBSERVATIONS							
42		NUMBER EACH							
10. AVERAGE HEIGHT (m)		Balloon Burst							
24301		29							
11. NUMBER OF OBSERVATIONS TO BALLOON BURST		Fading Signal							
29		8							
12. AVERAGE BURSTING HEIGHT (m)		Radiosonde Failure							
26370		3							
13. NUMBER OF SPECIAL OBSERVATIONS TAKEN		Leaking Balloon							
0		1							
a. LIST REASONS		Chart Limitation							
		1							
14. NUMBER OF SCHEDULED OBS. NOT TAKEN		17. REASONS FOR UNSUCCESSFUL RELEASES							
4		NUMBER EACH							
a. LIST REASONS Ship unable to maneuver while towing the Convair Buoy		0							
15. NUMBER OF OBSERVATIONS FILED LATE									
0									
a. LIST REASONS									
*Scheduled observations omitted because of proximity of ship to another observation point should not be counted as scheduled observations.									
IV. REMARKS (If more space is required, use separate sheets)									
18. PERFORMANCE OF BALLOONS, INSTRUMENTS, BATTERIES AND EQUIPMENT Balloons good. Series B 403mc Instruments good, series A poor. Batteries and ground equipment good.									
19. IF ANY WEATHER BUREAU EMPLOYEE WAS INJURED, DESCRIBE BRIEFLY NATURE OF INJURY									
V. OBSERVERS ABOARD SHIP									
NAME		NO. OF C/T HOURS WORKED	NO. OF HOURS SICK LEAVE TAKEN						
H.D. Shawley C.P. Johnson*			0						
D.E. Harmon			0						
20. SIGNATURE OF SHIPBOARD OFFICIAL IN CHARGE		21. DATE PREPARED	22. SIGNATURE OF PORT SUPERVISOR						
		12/19/68							



Positions of Upper Air Soundings
NPS Cruise 2



Positions of XBT and Marine Weather Observations
NPS Cruise 2



Observed Areas of Very High Concentrations of *Vellela lata*

NPS Cruise 2

Date	11 December 1968					12 December 1968				
	Time (2)	2000	2100	2200	2300	0000	0100	0200	0300	
Wind speed kts		26	23	26	30	33	28	30	28	
Wind direction °T		350	340	350	340	350	340	340	340	
Wave height ft.		6	7	7	8	8	8	8	8	
Cloud cover tenths		7	5	4	4	8	7	5	10	
Barometric pressure mbs		1019.4	1019.2	1019.5	1020.2	1020.5	1021.5	1021.6	1022.8	
Dry bulb °C		6.7	7.5	7.4	7.6	7.5	6.5	6.5	6.5	
Wet bulb °C		4.8	5.8	5.5	4.3	5.0	4.1	3.6	3.9	
Sea surface temperature °C		9.3	9.0	9.3	9.4	9.3	9.3	9.2	9.3	

HOURLY WEATHER OBSERVATIONS TAKEN WHILE STANDING BY BRAVO

11 December 1968

Date						
Time (Z)	1900	2000	2100	2200	2300	
Wind speed kts	30	30	32	29	29	
Wind direction °T	310	310	310	310	310	310
Wave height ft.	10	10	10	10	10	
Cloud cover tenths	10	10	10	10	10	
Barometric pressure mbs	1023.4	1023.7	1023.4	1022.3	1021.9	
Dry bulb °C	8.7	8.2	8.1	8.5	8.0	
Wet bulb °C	6.4	7.0	6.8	7.1	7.0	
Sea surface temperature °C	9.4	9.4	9.4	9.4	9.3	
Beaufort sea scale	7	7	7	7	7	

HOURLY WEATHER OBSERVATIONS TAKEN WHILE STANDING BY BRAVO

Date	13 December 1968						
Time (Z)	0000	0100	0200	0300	0400	0500	0600
Wind speed kts	31	31	30	30	29	29	30
Wind direction °T	300	300	290	290	290	290	280
Wave height ft.	11	11	11	12	X	X	X
Cloud cover tenths	10	10	8	8	4	2	2
Barometric pressure mbs	1021.4	1020.8	1020.5	1020.5	1020.7	1020.4	1020.5
Dry bulb °C	8.9	8.5	9.0	9.1	9.1	9.0	8.6
Wet bulb °C	7.4	7.5	7.5	7.6	6.8	6.7	6.4
Sea surface temperature °C	9.3	9.4	9.4	9.4	9.4	9.3	9.4
Beaufort sea scale	7	7	7	7	7	7	7

HOURLY WEATHER OBSERVATIONS TAKEN WHILE STANDING BY BRAVO

NORTH PACIFIC STUDY

CRUISE 2

SCIENTIFIC PERSONNEL

Leg 1

Scripps Institution of Oceanography

R. P. Huffer - Scientist in Charge

D. Kellogg

J. P. Costello

Leg 2

R. P. Huffer

D. Kellogg

J. P. Costello

R. J. Gould

United States Coast Guard

CDR Arthur G. Morrison, Captain U.S.C.G.C. ACUSINET

Ensign Roger F. Wells, N.D.B.S., Washington, D. C.

Convair Division General Dynamics

K. N. Jones

J. Winters

G. Brickson

G. Barlow

S. T. Uyeda

United States Weather Bureau

H. D. Shawley

C. P. Johnson

H. D. Shawley

D. E. Harmon

NORTH PACIFIC STUDY

CRUISE 2

Chronology of Events:

	Greenwich Time	
19 Nov.	2158	C.G.C. ACUSHNET depart N.E.L. docks, San Diego, with Convair's Alpha buoy in tow.
20 Nov.	0027	Convair's "Wild Pigeon" sea tender and ST-908 away from Alpha as ACUSHNET cleared sea buoy. Began lengthening tow to 1200 feet. Speed 4 kts.
	1830	RM 1 Shipman ill. Changing course north toward San Nicholas Island for rendezvous with Coast Guard ASR helicopter.
	2000	Coast Guard helicopter picked up sick crew member. Changed course to 180°T to clear U.S.N. missile range. Speed 9 kts.
	2305	Cleared missile range. Changed course to 276°T. Proceeding now on assigned mission.
	2340	Established radio contact with Scripps Radio Station WND on SSB frequency 12 Mhz. Schedule set for daily traffic at 1730Z and 2300Z.
21 Nov.	0045	Flooding lights on Alpha buoy flashing. Ship slowed and ship's motor surf boat (MSB) launched for Convair personnel to board buoy for inspec- tion.

0125 MSB returned to ship with inspection team.
Requested Convair mobile data center (MDC) La Jolla to interrogate buoy to determine which compartment has water.

0500 Secured Sperry Auto-pilot. Unit not operating properly. Using manual/electric steering.

1530 Checked specific gravity and labeled 4 buoy batteries and 2 spares. Put batteries for Buoy 44 on chargers.

1615 Started G.D.R.--no trace.

1730 Tried WND on 12 and 16 MHz. Received them very poorly and no traffic transmitted.

1750 XBT not working Electrical short in lead to Launcher.

2300 No contact WND either freq.

22 Nov. 0000 XBT repaired by resplicing the lead.

0500 Pump running on Alpha. Reduced speed to 7 kts.

1200 XBT.

1635 Convair personnel to Alpha on Cal 20 workboat.

1730 Bathy, weather and position transmitted to MDC on 12 MHz.

1800 1000 XBT-

1916 Convair personnel returned. Underway at 5 kts, course 276°T while sealant dried on compartment #1 hatch.

2235 Getting upper air humidity and temperature from first radiosonde balloon--beautiful afternoon.

2300 WND--No response on radio check.

23 Nov. 0000 XBT. Ship's clocks reset to + 9 zone.

0300 Sealant on hatch dry. Increased speed to 7 kts.
Course 275°T.

0030 Increased speed to 9 kts--cse 275°T.

0600 XBT.

1300 XBT.

1500 Speed 9 kts--cse 275°T.

1730 Gave WWD position, weather and information on
boarding Alpha yesterday and use of Cal 20 sea
tender. New schedule 2300Z and 0300Z on 12 MIZ.

1800 XBT.

2150 Satellite antenna disc (upper half of HF antenna)
on Alpha's mast observed missing. Position
33°05'N 131°28'W.

2207 Ship began search of area.

2300 Weather. Wind 280°T at 19 kts.
dry bulb 20.5°C, wet bulb 18.4°C
barometer 1024.3 and falling
clouds 5/8 cumulus, stratocumulus and altocumulus
bucket surface temperature 18.8°C
sea 2 ft. at 280°T, swell 2 ft. at 280°T

2320 Search secured. Results were negative.

24 Nov. 0000 XBT.

0300 VDC and WWD--
ACUSHNET returning to San Diego.

R/V OCONOSTOTA will rendezvous and return Alpha to San Diego. CGC ACUSHNET could then proceed to service S.I.O. Buoys. Schedule to be confirmed by radio.

0600 2100 XBT
 1200 XBT
 1530 Position and status report sent to WWD.
 1705 Speed 9 kts, cse 092°T
 1800 XBT
 2200 Problems with Nav Sat. Required reprogramming 3 times this morning.
 2300 Reached WWD but very heavy traffic.
 2330 Position and weather to WWD

25 Nov.

0000 XBT
 0140 Nav Sat teletype still not taking program.
 0200 Speed 7 kts cse 092°T
 0300 Unable to establish voice link with WWD.
 0600 Speed 6 kts.--cse 092°T Towing cable chafing on roller foundation and buoy riding poorly. Alpha skating from side to side in 22 kt cross wind. XBT
 1200 XBT
 1600 Speed 6 kts--cse 092°T--wind 23 kts at 020°T. Nav Sat out. Teletype will not accept program tape.
 1800 Contacted WWD and discussed Nav Sat.
 1807 Received OCONOSTOTA on 12403.5 KHz ship A S.S.B frequency. He is south of San Clemente awaiting better weather--gave him our weather and ETA his position 1700Z 27 Nov.

2200 Speed 8 kts cse 084°T

2300 MDC--arrangements to be made for:

- a) ACUSHNET to take on fuel and water
- b) Nav Sat representative to repair our unit
- c) Representative Sperry to make adjustments on new auto-pilot installation.
- d) S.I.O. E.T. to check out the GDR

It is planned for ACUSHNET to depart San Diego 29 November 1968 and service S.I.O. buoys.

R/V OCONOSTOTA released to return San Diego.

2330 Gave WWD position, speed, course, and weather
WWD advises elimination of radio schedule as they will be guarding 12 MHz ship A frequency.

26 Nov. 0000 XBT Ship's clocks reset to + 8 zone.

0600 XBT

1500 Speed 7 kts cse 090°T

1530 Cal 20 stainless steel shoe on keel and keel ripped out during night. Boat secured to deck by keel and gripped down over gunwales. Boat moved about 15 inches sideways. Port gunwale holed forward where 1/2 inch nylon line passed over it to the tie down pad-eye. Boat not repairable for 29 Nov. sailing. Battery barge ripped out brass snaps and lost 3 of 4 eye screws set in epoxy.

1800 Tried WWD but he faded.

	1900	MDC. We requested 3/8 inch galvanized stock for through fittings on battery barge and removal of Cal 20 buoy tender on arrival San Diego. Lt. John talked to R. Fong about block loader of Nav Sat computer.
27 Nov.	0520	Cse 090°T--speed since noon slightly more than 8 kts. Ship's E.T. working on radar.
	1740	MDC. We requested full reel 9/16 nylon for cruise.
	1900	ACUSHNET E.T. working on radar variable range selector. Photographed damage to Cal 20 and battery barge.
	2250	Dropped Alpha to Convair Motor Vessel "Wild Pigeon" and S.I.O. ST-908 slightly south of channel marker buoy SD6.
	2323	Docked at N.E.L.
29 Nov.	2233	ACUSHNET departed N.E.L.--Nav Sat rep- adjustments made to GDR as transducer at 1% for shallow work. Received galvanized steel eyebolt threaded rods for battery barge and daily report forms.
30 Nov.	1910	MDC--Daily report, position, speed and weather given. Making turns for 14.5 kts but S.O.A. about 12 kts. Cse 290°T wind 28 kts at 340°T E. T. working on radar scanner. Sperry autopilot not being used. Adjustments still not satisfactory.
01 Dec.	0900	Reset ship's clocks to + 9 zone.
	1057	Radiosonde balloon away (Raob)
	1830	Cse 294°T--wind 26 kts at 340°T--ship making turns for 13.5 kts but S.O.A. 11.3 kts. Radar gain not working as well as it should.

1915 MDC--position and weather, daily report transmitted.
Requested WND to call us ship A 12 MHz but barely
received him--ship CW not reaching CG radio
Long Beach.

2256 Raob

02 Dec. 0020 Repaired XBT and launched first XBT of this leg
to coincide with 0000Z balloon.

0600 Raob XBT

1108 Raob

1730 Ship's CW not reaching any CG shore stations. Tried
WND but no response--E.T.'s working on tuning radar.

1742 Ship's traffic to WND

1800 XBT

1823 Daily report to WND--Set new radio schedule of 1830
and 0030 with them. Repaired chart drive on XBT.

2140 Installed the thru-hull galvanized battery
barge.

2150 Radio check on Purple 3, Orange 4, and 5 watter o.k.
on Channel 15 or B.

2245 Raob

03 Dec. 0000 WND took weather observation and Raob. Ship's CW
not reaching shore stations.

0005 XBT out--obtained trace by twisting splice but
reading about 1.90°C high in mixed layer.

0600 XBT--same as above.

1046 Raob

1630 XBT's at 0000Z and 0600Z taken; however, they
exhibit a high but normally contoured trace.

Trace at 1200Z shows ziz-zags all over chart--XBT shorted out. Radar bearing marker drifts and set will not stay in tune.

1730 Convair's instrument (geodyne sensors) rack on fantail port side broken up by sea--put below.

1755 Tried WWD but no answer.

1800 XBT out.

1825 Still trying WWD on 1830Z schedule.

1841 WWD received us but poorly--gave ship's traffic plus daily report. Ship's CW not reaching shore stations.

1945 Welding rack of high pressure acetylene bottles fell turning over 2 buoy batteries and spilling sulfuric acid electrolyte.

2230 Raob

04 Dec. 0000 Ship's CW reached NMC San Francisco with traffic, 0000Z weather and raob.

0030 Radio check WWD--no contact.

0330 Respliced old connector on XBT electrical line. Soldered, taped and then covered with R.T.V. and allowed to cure overnight.

0345 ACUSHNET E.T. working on radar which is practically non-operational.

1000 Reset ship's clocks to + 10 zone.

1043 Raob

1830 Ship's CW being received by shore stations NMC San Francisco and Kodiak Alaska--Received R/V AGASSIZ on SSB--also (WLMN) L. B. SCRIPPS and ST-908.

1923 WWD very busy so gave daily report to MDC.
MDC passed on BRAVO reports air temperature 6°C, 1m
sea 10°C at 1700Z. Beach will check to see if
R/V AGASSIZ coming through area where S.I.O. November
buoy may be drifting.

1950 Installed low range 8°C-bucket thermometer. XBT
trace off to left of chart.

2300 Loaded 5 buoy data cameras. Only 2 frame counters
work properly and 3 have defective microswitches.
Checked defective cameras twice. XBT operating.
Tried calling Buoy 45 Channel 7 but no response at
13 miles. Changed course to 277°T.

2340 Raob

2341 Sighted Buoy 45 bearing 315°T 2 miles off starboard bow.

05 Dec. 0000 XBT

0025 MSB away to Buoy 45.

0125 MSB back for instrument pick-up.

0130 Radar secured for more work.

0200 Personnel aboard Buoy 45 report heavy concentration of
small Vellela lata.

0240 MSB secured.

0255 Underway to Buoy 44 east point of cluster.

0600 XBT

1042 Raob

1200 XBT

1800 XBT

1830 Calling WWD--heard and relayed by WEMN E. B. SCRIPPS on SSB.

1915 WWD still busy. MDC given brief report on Buoy 45 status. Informed Monterey computer rejecting Bathy messages as some confusion about our not giving surface temperatures data block 4 and chart surface temperatures data block 5. Will correct message blocks to be compatible.

2301 Raob

06 Dec. 0020 Course 286°T speed 11 kts. winds 35 kt at 220°T

0030 WWD suggests we reschedule 1830Z radio schedule to 1600Z because of heavy traffic. Maintain 0300Z schedule.

0600 XBT

1047 Raob

1200 XBT

1520 Change course to 257°T speed 10.5 kts

1600 Daily report to WWD.

1610 All engines stop. On position for Buoy 44 with no visual contact.

1645 Trying buoy call up system Channel 9 for 44 and all other buoys in cluster. Negative results on call up system. Call up system may have failed in all buoys as a result of power source failure; similar to Buoy 45 where the transponder battery was adrift.

1655 Nav Sat position 45°59.41'N 157°19.55'W

1745 Began running expanding square search for Buoy 44.

1800 Radar range diminishing. XBT taken.

1852 Passing eastbound freighter Pacific Far East Lines' THAILAND BEAR 1.8 miles our starboard side.

1915 MDC R. Schwartzlose asks for 2115Z schedule for us to receive weather forecast from Dr. Glenn Flittner at B.C.F., La Jolla.

2010 Nav Sat position 42°56.4'N 157°25.7'W

2030 Started second expanding square search pattern based on new Nav Sat position.

2115 MDC R. Schwartzlose reports weather forecast now available WWD at 0030Z.

2145 XBT

2247 Raob

2305 End of expanding square search. Results negative for Buoy 44. Proceeding to Buoy 41, located next to BRAVO.

07 Dec 0000 XBT

0100 Sighted Buoy 41. Badly damaged. Position 42°55'N 157°46.8'W. No sighting at BRAVO.

0110 MSB away to inspect Buoy 41.

0140 Completed inspection and recording of damage on Buoy 41 MSB returned.

0200 Received weather forecast from WWD. XBT taken.

0253 Sighted Buoy 39 dead ahead at 4 miles. Course 260°T.

0308 WWD requests we transmit bathy data taken at Buoy 41.

0330 MSB away to service Buoy 39.

0445 MSB back to ship for another data camera. Camera would not shut off. Camera's checkout o.k. in test mode on ship but failed when installed in buoy.

0538 MSB secured.

0600 Radar watch set for Buoy BRAVO during night.

1143 Raob
 1200 XBT
 1455 Sighted Buoy 42. Light beacon is bearing 290°T range 4 miles.
 1607 MSB away to Buoy 42. Informed WWD of its apparent good condition.
 1728 MSB back from Buoy 42. Nav Sat position 43°35.6'N 157°48.6'W.
 1800 XBT
 1930 Called MDC. Advised of completion on service of Buoy 42.
 2303 Raob
 08 Dec. 0000 XBT
 0015 Wind 30 knots and increasing. Weather now too rough to service buoys in cluster. Proceeding to Buoy 38 at 164°W.
 MDC called. They requested that ACUSINET confirm that BRAVO is no longer at her mooring site by radio message to Com West Area. Com West Area will initiate information to ship's area.
 1102 Raob
 1200 XL.
 1600 Tried WWD and MDC; could not reach either.
 1800 XBT
 1845 Batteries from Buoy 39 off charger. S.G. 1.30.
 Batteries from Buoy 42 placed on charger. Head in port socket of steering cable fitting broke and repairs will take 4-5 hours. Ship hove-to for repair of steering cable.
 1913 Wind down to 12 knots.

1915 MDC. Daily status report transmitted.

Requested an overflight to establish present position of the BRAVO buoy no later than Tuesday 10 December. MDC personnel believe ACUSHNET can find BRAVO before plane; however, Captain Morrison wants a definite visual sighting and position. The ACUSHNET is limited in search capability with her radar out. Present search area is too poorly defined at this time.

2124 Repairs completed on steering cable; ship underway.

2300 Raob

2310 Sighted Buoy 38 42°00'N 164°00'W dead ahead.

2347 Readied all MSB personnel and then secured due to increasing wind and sea state.

09 Dec. 0030 Tried KWD--no response.

0040 XBT

0115 MDC. No change in BRAVO situation. Gave Bathy and weather call again 0715 09 Dec. and abandon next KWD schedule.

0240 MSB readied for another try at buoy. Winds increased quickly and this attempt aborted.

0600 XBT

0109 Raob

1200 XBT

0425 Radar out

0715 MDC. Gave daily status report.

1800 XBT

1807 MSB away to Buoy 38.

1853 MSB back and secured.

1930 MDC--reported status of Buoy 38. La Jolla reports new position calculated for BRAVO. Location now believed to be 44°N 152°W.

2118 Loaded camera serial number 5318 from Buoy 38.

2301 Raob

10 Dec. 0000 XBT Cse 084°T speed 14 knots.

0015 MDC. Convair requests that we attempt RDF procedures at the BRAVO interrogation tomorrow 1705Z. Advised available equipment ancient and very marginal; however, will try for RDF bearings on BRAVO. Advised of possible overflight. MDC will put BRAVO on 8 MHz and will communicate with ACUSHNET on 16 MHz.

0100 KWD indistinct--try tomorrow.

0600 XBT

0110 Raob

1200 XBT

1640 Sighted Buoy 40 on radar bearing 050°T at 1/2 mile. Radar reflector on this buoy gone. Mounting base for reflector intact. Strobe light beacon non-operational.

1747 MSB away to service Buoy 40.

1800 XBT

2025 MSB back and secured.

2030 Via KMI Oakland. R. Schwartzlose advises FCC obtained class D RDF position on BRAVO as 43°N 150°W. Overflight to locate BRAVO still pending. Work on repair of wind sensors on S.I.O. Buoys 39 and 42 will proceed pending the aircraft's confirmation of BRAVO position.

2100 Underway to Buoy 39, west side of cluster

2120 BRAVO putting out signal on 12 MHz but Scripps RDF not receiving. No equipment on ACUSHNET capable of obtaining any bearings on BRAVO signal.

2207 Course 338°T speed 14.5 knots.

2230 Scheduled aircraft search for BRAVO 43°N 150°W No reports received from aircraft or La Jolla reference this overflight.

2250 Raob

2305 Sighted Buoy 39. Position 42°54.7'N 158°120'W.

2312 MSB away to Buoy 39. Installed weather mast instrument head #35052 and removed #35058. Wind speed totalizer and indicator now operational.

2352 MSB secured.

11 Dec. 0000 XBT

0250 Sighted Buoy 42.

0311 MSB away to Buoy 42. Attempted to install new weather sensor head; however, threads stripped on bolt hole securing it to mast. Sensor head consequently was not changed. The anemometer unit was changed. Wind speed indication and totalizer now operating.

0415 MSB secured. Proceeding course 150°T to original BRAVO site.

0600 XBT

0709 Arrived original BRAVO site. Changing course 090°T to search for BRAVO.

1046 Raob

1200 XBT

1402 Visually spotted BRAVO by its light 12.5 miles relative bearing 040°. S. Uyeda reports BRAVO working fine except for location now determined as 43°02.9'N 154°56.8'W.

1719 MDC Relayed to Convair preliminary report on BRAVO.

1750 MDC Transmitted daily status report.

Note weather is picking up and present conditions prohibit boarding of BRAVO.

1800 XBT

2000 MDC. Convair requests that we make hourly weather observations.

2255 Raob

12 Dec. 0000 XBT

0200 Total so far 9 Nav Sat fixes on BRAVO. Wind 30 kts. plus.

0600 XBT

0810 Radar out.

1037 Raob

1200 XBT

1800 XBT

1816 Have 19 Nav Sat fixes on BRAVO--appears moored--XBT giving erratic trace--Radar problem found to be windings on motor generator. GDR not operating.

1840 MDC. Convair advises do not put line on BRAVO to determine if moored. Also do not interrogate sonic release to see if intact. Suggest we stand by another 24 hours continuing all observations.

1915 Checked S.G. on batteries from Buoys 38 and 40. Those from 40 very low.

1920 Began GDR trace on BRAVO site 326°T speed 6.6 kts
Receiving intermittent signal return on northerly leg
into swell. GDR blowing fuses.

2020 Via KMI Oakland. Schwartzlose advises a 3 to 4 millibar
discrepancy between Weather Bureau barometer and BRAVO
data. Requests we continue hourly weather observations
and include Beaufort sea state scale. Prof. Isaacs
requests opinion on present BRAVO mooring status.
Advised BRAVO believed moored on present information;
however, would need bottom survey to estimate reliability
of this mooring. Present weather and G.D.R. problems
have prevented bottom survey. Attempts will continue to
rectify this situation.

2115 MDC. Gave hourly weather including Beaufort wind sea
scale 7.

2120 Stopped bottom survey as ship very close to BRAVO for
upcoming Nav Sat fix. Noticed outrigger on orange side
broken at point where it goes over hull edge. Changed
circuit boards on GDR but it is still blowing fuses.

2232 Raob

2300 XBT repaired--dropped one close by BRAVO.

13 Dec. 0000 XBT

0300 KMI Oakland phone to R. Schwartzlose who tells us BRAVO
giving wind speeds 2/3 or less than ACUSINET hourly
data. Arrangements to be made for recalibration of
barometer and calibration of anemometer immediately on
our return.

0506 Reprogramming Nav Sat. GDR out.

0600 XBT

0105 Raob

1200 XBT

1700 Nav Sat teletype will not take program, but got 3 more
fixes during the night. Total of 28 Nav Sat fixes on
BRAVO. Conditions very rough today. Beaufort scale of 8.

1705 Course 110°T speed 12 kts 17 ft following swell.
ACUSHNET underway for San Diego.

1720 MDC. Gave hourly weather and daily report to R. Born.

1800 XBT

2218 Nav Sat repaired.

2246 Raob

14 Dec. 0000 XBT

0030 WWD no answer. MDC took request to set up calibration
of Weather Bureau's barometer and ACUSHNET'S anemometer.
Also they will relay request for N.M.F. berthing, our
preference.

0100 Nav Sat o.k.

0200 Beaufort wind sea scale 8. 16 foot sea and swell.

0600 XBT

1035 Raob

1200 No XBT. Fantail secured due to weather.

1600 Making good 15.5 kts on turns for 14.5--cse 110°T
Nav Sat not taking program. Weather astern Beaufort
scale 8.

1910 MDC--Daily report transmitted.

1915 Edo taking continuous trace.

2250 Raob--Heavy concentration of small (silver dollar) size Vellela lata in about same position as before Buoy 45.

15 Dec. 0145 Nav Sat working.

0900 Reset ship's clocks to + 9 time zone

1104 Raob

1200 XBT

1800 XBT first probe bad--second broke wire--third o.k.

1805 WWD taking ship's traffic--12 MHz ship A.

1940 WWD daily report.

2245 Raob

16 Dec. 0000 XBT

0600 XBT

0825 Gyro compass out.

1155 Raob

1200 XBT

1800 XBT

1833 WWD--no response--radio check E. B. SCRIPPS reports he had no roger on earlier WWD message--position at 24°N off Baja.

1846 MDC wants to wait until 1915Z so will not interfere with 1905Z BRAVO interrogation.

1910 MDC. Daily report transmitted and air reservations of ACUSHNET personnel going on leave being confirmed.

17 Dec. 0000 XBT

0015 MDC advises berthing reserved for ACUSHNET at N.E.L. outboard Alpha pier all the way forward. Barometer calibration by both Convair and Weather Bureau arranged.

	0423	No. 3 diesel off the line. Cracked piston.
0530	2030	XBT
	0800	Reset ship's clocks to + 8 zone.
	1045	Raob
	1200	XBT
	1730	WWD phone patch to R. A. Schwartzlose. Status report.
	1800	WWD daily report. XBT
	2245	Raob
18 Dec.	0000	1600 XBT
	1640	WWD no response. ACUSINET voice AM radio to Nav Fleet Command because of ADIZ missile range.
	1745	MDC no response.
19 Dec.	0030	MDC--Forecast no fog problem at San Diego.
	1600	Arrived San Diego N.E.L. docks.